GMDC/_____ **Date: _____**

Letter of Award (LoA)

To,

_____

Email:

Kind attention:

Subject: Balance of Plant Package for Overhaul of GMDC's 250 (2x125) MW Akrimota Thermal Power Station (ATPS), Gujarat

Ref: RFP No:

Dear Sir / Madam,

With reference to the above subject and reference RfP, GMDC is pleased to award this LoA to Your Entity for Overhaul of Balance of Plant Systems at GMDC's 250 (2x125) MW Akrimota Thermal Power Station (ATPS), Gujarat

Scope of work:

1. Responsibilities of Your Entity

The responsibilities of Your Entity as part of the Contract have been segregated into two key categories – services and supply. The terms of reference / scope of work have been detailed for each category below.

1.1. Scope of services

The scope of the Contract shall be providing end-to-end services for Overhaul of the Balance of Plant systems for both units of the Plant, as part of the Balance of Plant package. Your Entity shall ensure execution of the scope of work is done in accordance with best-in-class practices, standards of safety, and mutually agreed terms with the Owner.

Battery Limits

Your Entity shall be responsible for maintenance and / or overhauling of all mechanical, electrical, and instrumentation equipment of the Balance of Plant across Unit-1 and Unit-2, as part of the scope of work, as detailed in Part 2 of this document. This shall include all equipment within the following circuits as part of the Balance of Plant as detailed below:

- Lignite handling system: Starting from unloading station of lignite to the inlet of the lignite bunker, including the yard equipment (e.g., stacker reclaimer), conveying system, crushers, etc.
- Lime handling system: Starting from unloading station of lime to the inlet of the lime bunker, including conveying system, crushers, etc.

- Ash handling system: Starting from the outlet of the ash rotary seal to disposal (for bottom ash) and ESP bottom hoppers to disposal (for fly ash)
- Sea water treatment system: Starting from the sea water intake into the plant, up to cooling tower make up (terminal 1), and DM water outlet, including the clariflocoulator, rapid sand gravity filter, reservoir and pump house, hypochlorite system, desalination plant, and DM plant.
- Cooling water circuit: Closed circuit from cooling towers to inlet from condenser, including the cooling water pumps
- Condensate system: Starting from outlet of LP turbine, and inlet from cooling water pumps to outlet of HP heaters including the condenser, condensate extraction pumps, hot well, deaerator, HP heaters, etc.

Other equipment in the scope of this Package include:

- Electrical system: Electrical systems across the plant within the battery limits defined above, and evacuation infrastructure starting from IPBD, including excitation transformers, generator transformer (for Unit 1), CT / CVT, UAT, station transformer, switchyard, etc.
- Instrumentation: Field instruments across the battery limits defined above, including wiring up to junction boxes

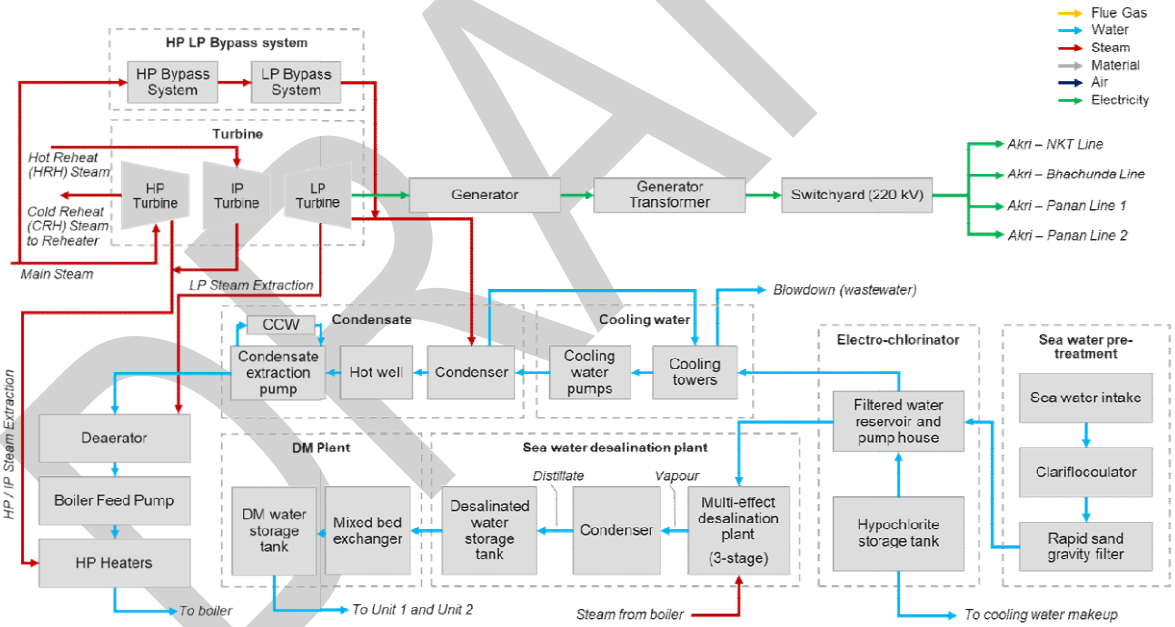

Figure 1: Process Flow Diagram: Balance of Plant

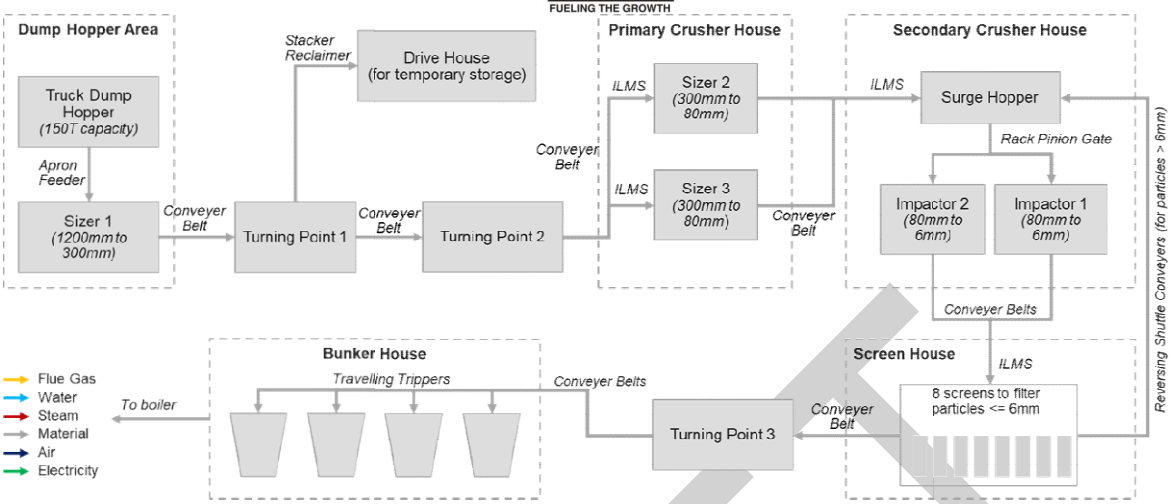

Figure 2: Process Flow Diagram - Lignite Handling System

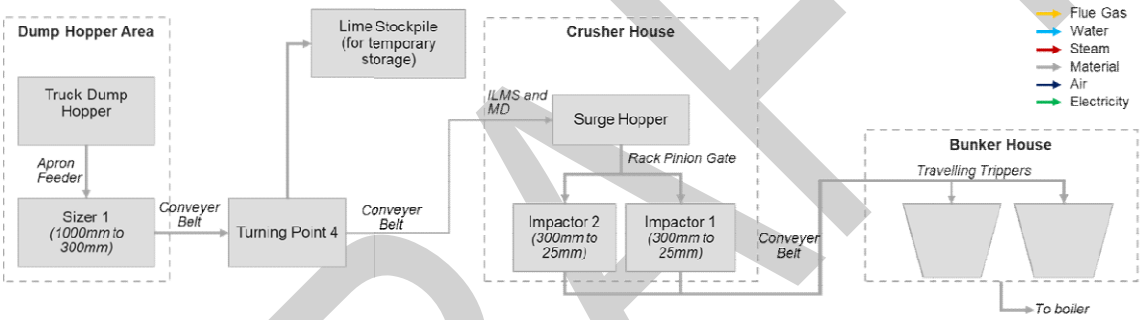

Figure 3: Process Flow Diagram - Lime Handling System

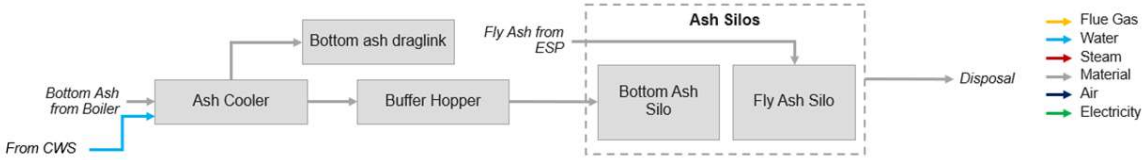

Figure 4: Process Flow Diagram - Ash Handling System

1.1.1. Pre-Overhauling activities

1.1.1.1. Detailed Overhaul planning

1. Your Entity shall create a detailed consolidated 'Overhaul Execution Plan' for the Balance of Plant package in collaboration with the PMC, focusing on sequencing of activities, identification of interdependencies, and indicating clear milestones, in line with the timelines mentioned under "Duration of Contract" and Section 8.2 (Payment Milestones)

2. The 'Overhaul Execution Plan' shall be used as the single source of truth for monitoring schedule compliance for Your Entity, i.e., deviations in actual timelines vis-à-vis planned timelines
3. The 'Overhaul Execution Plan' shall be at an equipment level, encompassing all activities including but not limited to dismantling, inspecting, cleaning, repairing, installation, commissioning, and testing
4. Your Entity shall prepare appropriate Quality Assurance Plan (QAP) or Quality Inspection Plan (QIP) and Quality Control Plan (QCP) for execution of the Overhaul and shall get it reviewed by competent authority from the PMC and the Owner. Your Entity shall apprise the Owner about the plans to enable frequent audits, and highlight potential concerns, if any
5. Your Entity shall prepare Balance of Plant Overhaul protocols indicating the sequence of activities to be conducted along with set of readings to be measured before and after overhauling

1.1.1.2. Owner readiness assessment and support

1. Your Entity shall, in collaboration with the PMC, conduct audits and physical verification of existing inventory at the Plant to identify the equipment and associated spares and material readily available to be utilized during the Overhaul.
2. Your Entity will assess the availability of required spares at the Plant. They will conduct a gap analysis and incorporate the additional material to be procured in the 'Procurement Register' (detailed in Section 1.2.1) to ensure optimal Procurement and consumption of material
3. Your Entity shall assess the workshop equipment prior to the start of the Overhaul. The details of the equipment available in the workshop as on date has been summarized below:

S. No	Description	Make	Status
1	Precision Lathe (12 feet)	Panther	Working
2	Lathe machine (3 feet)	Esteem	Working
3	Piller Drilling Machine	Eifco	Working
4	Rough grinder	Eifco	Working
5	Power Hacksaw	Eifco	Working
6	Radial Drill Machine	HMT	Working

4. The Overhaul Plan created by Your Entity shall mention requirement for equipment from the GMDC workshop. Your Entity shall create an equipment usage plan in collaboration with PMC incorporating all interdependencies
5. Your Entity shall be given access to the workshop equipment as per availability and Overhaul plan indicating requirement of workshop equipment. Your Entity shall coordinate with the PMC to access the existing equipment and ensure no impact on execution timelines. If Your Entity requires additional equipment to deliver the services defined in Section 1 of this document, the same shall be in the scope of Your Entity

6. Your Entity shall arrange and depute necessary operators as required for operating the workshop equipment

1.1.1.3. Statutory approvals

Your Entity shall obtain, on behalf of the owner, all necessary statutory approvals from Inspection Authorities, or other government authorities, as may be required, as per Applicable Laws at its own cost. All necessary documentation prepared and / or obtained for such statutory approvals shall be submitted to the Owner for review prior to submitting for approvals to relevant authorities. Coordination and liaising with competent authority are in the scope of Your Entity.

1.1.1.4. Workforce deployment

1. Your Entity shall deploy a 'BOP Package Leader' with strong technical expertise and experience of over 12 years, with prior experience in Overhauling, having successfully completed at least 2 EPC / ETC / R&M / Overhauling of a thermal power plant in the last 12 years, in coal or lignite-based thermal power plants in India
2. Your Entity shall deploy five "Function Leaders", as per the table mentioned below, with strong technical expertise and experience of over 10 years in O&M / EPC / ETC / R&M / Overhauling of thermal power plants.
3. The 'BOP Package Leader; shall coordinate with the PMC and the Owner on all matters pertaining to the execution of the Overhaul
4. The minimum requirements for Your Entity to ensure coverage of all equipment within the battery limits has been summarized below:

S. No	Member	Role	Minimum requirement	Minimum Qualification
1	BOP Package Leader	Overall Package coordinator	1	Graduation in Mechanical / Electrical / Instrumentation / or equivalent Engineering (BE / B.Tech) with at least 10 years' experience
2	Mechanical Lead (MHP)	Supervisor for mechanical activities in the material handling plant (lignite, lime, and ash)	1	Graduation in Mechanical / Electrical / Instrumentation / or equivalent Engineering (BE / B.Tech) with at least 8 years' experience
3	Mechanical Lead (BOP)	Supervisor for mechanical activities in the balance of plant including water	1	

S. No	Member	Role	Minimum requirement	Minimum Qualification
		treatment plant, turbine auxiliaries, etc.		
4	Electrical Lead	Supervisor for electrical activities	1	
5	Instrumentation Lead	Supervisor for C&I activities	1	
6	Safety Lead	Supervisor for ensuring EHS (environment, health, and safety) activities	1	
7	Quality Head	Supervisor to ensure adherence with Quality Assurance Plan	1	Graduation in Mechanical / Electrical / Instrumentation / or equivalent Engineering (BE/B.Tech) with at least 7 years' experience

5. Your Entity shall ensure that all deployed personnel are available at the Plant at all times during the execution of the Overhaul. The 'BOP Package Leader' shall be present at the owner's corporate office in Ahmedabad for progress review and other meetings that may be organized during the course of the Overhaul, as needed. Your Entity, at their own cost, shall arrange for their own accommodation for representatives travelling to Ahmedabad for such meetings.
6. Your Entity shall submit details of all deployed personnel for execution of the Overhaul to the PMC prior to deployment and ensure they are in line with Contractual requirements.
7. Your Entity should deploy sufficient workforce for simultaneous work on multiple systems present in the BOP package, in assurance with the 'Detailed Overhaul Plan', as detailed in Section 1.1 of this document.

1.1.1.5. Infrastructure arrangement

1. While the Owner will arrange for the accommodation and food for Your Entity's personnel deployed in the Plant on the basis of availability and on a chargeable basis, in case infrastructure is not available, Your Entity shall be responsible for arranging the same for the entire course the Overhaul.
2. Your Entity shall maintain a dedicated shed for conducting necessary works including but not limited to fabrication, repair, storage of material, etc. The Owner shall provide access to the available facilities and workshop in the Plant with prior written consent, as per availability

3. For timely and successful completion of the Overhaul, if new set of skilled operators are required for workshop equipment, Your Entity shall arrange the same at its own cost

1.1.1.6. Structural modifications / strengthening

Your Entity shall be responsible for necessary structural modifications including supply, fabrication, and erection of any new structure to support piping, equipment, and provision of any additional platform if required for access to new equipment, or any other structural modification works required for execution of the Overhaul to aid the completion of the works defined in Section 1.1.2 of this document.

1.1.1.7. Hanger inspection and servicing

1. Your Entity shall inspect all installed hangers, spring supports, flexible supports, rigid supports, etc. as per the battery limits defined under "Battery Limits", and assess their load bearing capacities, prior to commencement of Overhaul. A detailed list of hangers available at the Plant has been appended in Annexure 3
2. Your Entity shall replace all damaged / unsuitable / non-functional hangers, supports, and associated components, as needed for the execution of the Overhaul

1.1.1.8. Scaffolding and platforms

Your Entity's scope shall include supply of all scaffolding, and / or platforms, as may be required for repair / Overhaul and commissioning. These items shall be specifically brought to the Plant solely for repair / Overhaul purpose and if no more needed for regular maintenance of the equipment, can however, be taken back by Your Entity after completion of the work at the Plant.

1.1.1.9. Cranes

Since the Overhauling will be conducted simultaneously for multiple systems present in the BOP package, Your Entity shall arrange for additional jib cranes with skilled operators, as required and if needed.

1.1.1.10. Air compressors

Since the Overhauling will be conducted simultaneously for multiple systems present in the BOP package, Your Entity shall arrange for portable air compressors for carrying out the works during the shutdown, as needed. Your Entity shall arrange suitable cables, terminations/ joints for extending power from the existing source/ socket to portable compressors/ other power machines.

1.1.1.11. Consumables for Overhauling

Your Entity shall be responsible for ensuring availability of sufficient quantities of all consumables for the Overhauling of BOP systems in the Plant.

An indicative list of consumables to be provided by Your Entity have been detailed below:

S. No	Item
1	Hex Head SS Nut Bolt
2	Paint
3	Primer
4	Thinner
5	Spray Bottle
6	Anticorrosive
7	Tape Roll
8	Insulation Tape
9	Aluminum Foil Tape
10	Cotton waste
11	TB Connector
12	M-Seal Adhesive
13	Hacksaw Blade
14	Buffing Wheel
15	Cutting Wheel
16	Grinding Wheel
17	Painting Brush
18	Steel Wire Brush
19	Emery Paper Roll
20	Emery Cloth Paper
21	Washing Powder
22	C Type Mild
23	Loctite-638, Bearing
24	Loctite-641, Bearing
25	Cable Tie
26	Silicon Sealant
27	Wie Copper Flexible Cable
28	Transparent Plastic Sheet
29	Tarpaulin Duck
30	Plastic Roll
31	Waterproof Tarpaulin
32	Carbon Cleaner
33	Cable jointing kits

This list is indicative and actual consumables at the time of overhauling shall be determined by Your Entity.

Further, Your Entity shall also ensure safe disposal of sewage and other wastes, as necessary, to ensure safe and clean operations.

1.1.1.12. Dismantling of existing equipment

1. Your Entity shall be responsible for dismantling of existing equipment prior to the initiation of the Overhaul, as needed, including but not limited to the transformer, piping, pumps and valves, conveyors, insulation, supports, and other components.
2. Your Entity shall prepare a checklist for dismantling and list of readings to be taken at the time of dismantling and submit to competent authority from the PMC and the Owner for review
3. Your Entity shall submit a floor plan for storing the dismantled components of the BOP Systems and submit it to the PMC for approval. Your Entity shall ensure the components are appropriately stored in the area, as per the floor plan approved by the PMC, during the course of the Overhaul.

1.1.1.13. Safety arrangements

1. Your Entity shall ensure the personnel deployed in the Plant adhere to the appropriate health, safety, and environment (HSE) requirements at the time of deployment. This will include medical tests required, if any, among other requirements to be aligned with the Plant HSE team
2. Your Entity shall make own arrangement for proper electrical and electronic grounding of all systems, supplied by them as required by the system design. All required accessories including grounding cables are also included in Your Entity's scope
3. Safe power supply and illumination for confined places shall be arranged by Your Entity. Any illumination work necessary to fulfill the scope of services defined in this RfP shall be carried out by Your Entity prior to the start of other work
4. A single point electrical supply of 415V, 32/63 Amp 3 phase and single point electrical supply of 230V, 16 Amp single phase power supply point from nearest available healthy source shall be supplied to Your Entity free of cost. Your Entity shall be responsible for the provision of cables for extending power to its apparatus
5. Your Entity shall be solely responsible for ensuring the safety of the adjacent equipment / foundations and of the existing supporting structures. The Overhauling work by Your Entity shall be carried out in such a manner that no damage is caused to existing equipment / foundations / structure

1.1.1.14. Permits

1. Your Entity shall obtain and maintain in effect all applicable Contractor permits required in connection with Your Entity's performance of its obligations hereunder, including but not limited to licenses to permit Your Entity to do business in the jurisdictions where the work is to be performed, design, engineering, procurement, fabrication, construction, erection, testing and commissioning, start-up testing, tests before taking-over, export,

import, and other applicable permits required to move, transport, and deliver material / equipment to and fro from the Plant

2. Your Entity shall obtain all necessary Contractor and Construction permits. If Your Entity at any time becomes aware, whether as a result of notice from Owner or otherwise, of any applicable permit not obtained by him, Your Entity shall promptly give notice thereof to Owner and Your Entity shall be responsible for obtaining such applicable Permits

3. Your Entity shall provide support to the owner in obtaining necessary Owner's permits, including but not limited to the following activities:

   i. Overall co-ordination of permitting requirements
   ii. Attendance at meetings with Owner and third parties designated by Owner
   iii. Preparation of permit applications or, as applicable, application to transfer permits to the Owner
   iv. Assistance in preparation of responses to inquiries by governmental instrumentalities/ agencies
   v. Assistance in presentations at hearing of governmental instrumentalities / agencies
   vi. Provision of all available information and documents required by Owner in connection with obtaining any Owner Permits; and
   vii. Such other services as Owner may request from time to time required for Owner permits

1.1.2. Overhauling activities

Your Entity shall prepare a comprehensive list of activities to be undertaken during the Overhaul, as part of the 'Overhaul Execution Plan', detailed in Section 1.1.1.1 of Part 2 of this document.

1.1.2.1. Measurement of parameters

Your Entity shall prepare a list of all parameters to be measured prior to initiation of the Overhaul and post completion of the Overhaul. Your Entity shall validate the list with competent authority from the Owner and the PMC and obtain approvals prior to initiation of the Overhaul. For measurement of the parameters, Your Entity shall use the existing instrumentation installed at the Plant and highlight to the PMC and the Owner in case of any issues.

Your Entity shall be responsible for measurement of all essential parameters, prior to overhauling of the BOP Systems, while dismantling as per Section 1.1.1.12. Your Entity shall maintain a log of all the readings to be furnished to the competent authority from the PMC and the Owner

Your Entity shall ensure that the readings observed post inspection, maintenance, and assembly of the BOP Systems are at par or better than the readings measure prior to dismantling. In case of deviations, Your Entity shall furnish appropriate documental evidence justifying the deviations. The detailed performance guarantee requirements have been incorporated in Section 4.

1.1.2.2. Dismantling and cleaning

Your Entity shall be responsible for dismantling of components of the BOP Systems, storage of dismantled components in the areas earmarked by the PMC, and cleaning of the equipment with appropriate tools and safety precautions, prior to inspection of the components.

1.1.2.3. Overhaul plan (Mechanical)

Your Entity shall be responsible for performing comprehensive Overhaul of all the Mechanical systems in the BOP Package. The list of activities to be carried out, across all key components, have been detailed below as Plan 1 to 15.

Plan 1: Lignite handling system

The key activities to be executed by Your Entity for repair / overhaul of the Lignite Handling System shall include, but not be limited to, the following. The indicative list of spares to be procured for Lignite Handling System have been detailed in Annexure 2, Mechanical, Plan 1.

Component	Activity	Unit
Apron Feeder	– Servicing including supply and replacement of feed roller assembly (guide roller)	Common
	– Servicing including supply and replacement of hold back for gear box	Common
	– Servicing including supply and replacement of apron pan bolts	Common
	– Servicing including supply and replacement of apron feeder drive shaft bearing	Common
	– Servicing including supply and replacement of apron feeder drive shaft sleeve	Common
Lignite sizers	– Supply and replacement of breaker shaft assembly for Sizer-01	Common
	– Supply and replacement of pump assembly for Sizer-01,02,03	Common
	– Supply and replacement of Fixed and floating bearing Assy. for sizer 2 and 3	Common
Impactors	– Supply and replacement of 116 nos. of impactor beater heads for impactor 2, and supply of 116 nos. of impactor beater heads as spare	Common
	– Supply and replacement of 116 nos. pins for beater head for impactor 2, and supply of 116 nos. of pins as spare	Common
	– Supply and replacement of flat belt for both impactors	Common
	– Supply and replacement of drive pulley bearing	Common

Component	Activity	Unit
	and drive pulley bearing sleeves for both impactors	
	– Supply and replacement of impactor rotor bearing and impactor rotor bearing adaptor sleeve for impactor 2	Common
	– Supply and replacement of impactor wall grinding plate and impactor wall grinding gib for both impactors	Common
	– Supply and replacement of beater arm for impactor 2	Common
	– Supply and replacement of tension bush for impactor 2	Common
	– Supply and replacement of rotor pins for impactor 2	Common
	– Supply and replacement of disc rotor assembly for impactor 1	Common
Screen	– Supply and replacement of BVT Sieve mats for all 8 screens	Common
	– Supply and replacement of clamping ledge for all 8 screens	Common
	– Supply and replacement of edge strip bivitec for all 8 screens	Common
	– Supply and replacement of clamping piece for all 8 screens	Common
	– Supply and replacement of cardan shaft for Screen 3, 4, 7, 8	Common
	– Supply and replacement of rubber block for all 8 screens	Common
	– Supply and replacement of joint pipe for all 8 screens	Common
	– Supply and replacement of gummi feeder for all 8 screens	Common
	– Supply and replacement of nuts and bolts for all 8 screens	Common
	– Supply and replacement of side wall for cover as per Annexure 2, Mechanical, Plan 1	Common
	– Supply and replacement of con-rod for Screen 1, 2, 5, 6	Common
	– Supply and replacement of drive shaft of plumber block as per Annexure 2, Mechanical, Plan 1	Common
	– Supply and replacement of V-belt for Screen 3, 4, 7, 8	Common

Component	Activity	Unit
	– Supply and replacement of bearing 22216 EK for Screen 3, 4, 7, 8	Common
	– Supply and replacement of sleeve H-316 for Screen 3, 4, 7, 8	Common
Lignite Conveyors	– Supply and replacement of troughing trainer assembly	Common
	– Supply and replacement of return trainer assembly	Common
	– Supply and replacement of frame assembly with impact pads	Common
	– Supply and replacement of primary and secondary belt scrapper	Common
	– Supply and replacement of complete brake assembly	Common
	– Supply and replacement of carrying idler and return idler	Common
	– Supply and replacement of frame assembly with impact idlers	Common
	– Supply and replacement of conveyor pulley with plain rubber lagging and diamond rubber lagging	Common
Lignite RSC	– Supply and replacement of sealing belt	Common
	– Supply and replacement of troughing trainer assembly	Common
	– Supply and replacement of return trainer assembly	Common
Lignite Ultra flow feeder	– Supply and replacement of bearing and oil seal in UFF-01	Common
ILMS	– Supply and replacement of belt, pulleys and bearings	Common
Lignite Pump	– Supply and replacement of DW pump 1B without motor and vertical sump pump without motor	Common
Lignite Handling System	– Supply, painting and replacement of MS angles, checkered plates, MS plain plates, SS plates, square hollow steel section, rectangular hollow steel section, staircase steps and channels wherever needed between stacker reclaimer and bunker inlet	Common
Bucket wheel	– Supply and installation of bucket wheel assembly	Common
Hydraulic power pack	– Supply and replacement of pipings of hydraulic power pack	Common
	– Supply and replacement of boom cylinder, bucket	Common

Component	Activity	Unit
	chute cylinder, center chute, and cabin level cylinder servicing	
Grease lubrication system	– Supply and replacement of grease lubrication system	Common
Dust suppression system	– Supply and replacement of dust suppression system	Common
Dry fog system	– Replacement dry fog system with supply of spares	Common

Plan 2: Lime handling system

The key activities to be executed by Your Entity for repair / overhaul of the Lime handling system shall include, but not be limited to, the following. The indicative list of spares to be procured for the Lime handling system have been detailed in Annexure 2, Mechanical, Plan 2.

Component	Activity	Unit
Apron feeder	– Supply and replacement of apron pan	Common
	– Supply and replacement of chain assembly	Common
	– Supply and replacement of HT bolt	Common
	– Supply and replacement of feed guide roller assembly	Common
	– Supply and replacement of rubber pads	Common
Lime Sizer	– Supply and replacement of lube pump assembly (with pipings) and dipstick (for spur gearbox)	Common
Lime DC	– Supply and replacement of scrapper	Common
	– Supply and replacement of roller chain	Common
Conveyor belts	– Supply and replacement of conveyor belts LM-1, 2, LM-1A, 1B, 2A, 2B	Common
	– Supply and replacement of return training assembly for conveyor belts LM-1, 2, LM-1A, 1B	Common
	– Supply and replacement of return idler for conveyor belts LM-1, 2, LM-1A, 1B, 2A, 2B	Common
	– Supply and replacement of bracket for return idlers for conveyor belts LM-1, 2, LM-1A, 1B, LM-2A, 2B	Common
	– Supply and replacement of troughing trainer idler	Common

Component	Activity	Unit
	frame assembly with idlers for conveyor belts LM-1, 2, LM-1A, 1B, 2A, 2B	
	– Supply and replacement of troughing idler for conveyor belts LM-1, 2, LM-1A, 1B, 2A, 2B	Common
	– Supply and replacement of impact idler for conveyor belts LM-2, 2A, 2B	Common
	– Supply and replacement of conveyor pully for conveyor belts LM-1, 2, LM-1A, 1B, LM-2A, 2B	Common
	– Supply and replacement of bearing block assembly, bearing and sleeve for conveyor belts LM-1, 2, LM-1A, 1B, LM-2A, 2B	Common
	– Supply and replacement of impact pad frame set for conveyor belts LM-1, LM-1A, 1B	Common
	– Supply and replacement of impact pad for conveyor belts LM-1, LM-1A, 1B	Common
	– Supply and replacement of return trainer assembly with rollers for conveyor belts LM-2A, 2B	Common
	– Supply and replacement of idler for bunker seating belt	Common
	– Supply and replacement of plain rubber pulley lagging sheet for conveyor belts LM-1, 2, LM-1A, 1B, LM- 2A, 2B	Common
	– Supply and replacement of diamond rubber pulley lagging sheet for conveyor belts LM-1, 2, LM-1A, 1B, LM- 2A, 2B	Common
	– Supply and replacement of breather plug for conveyor belts LM-1, 2, LM-1A, 1B, LM- 2A, 2B	Common
	– Supply and replacement of oil view glass for conveyor belts LM-1, 2, LM-1A, 1B, LM- 2A, 2B	Common
	– Supply and replacement of skirt pads for coffin box with front and back plates for conveyor belts LM-1, 2, LM-1A, 1B, LM- 2A, 2B	Common
Lime ILMS-1&2	– Supply and replacement of bearings	Common
	– Supply and replacement of nonmagnetic pulley	Common
	– Supply and replacement of rubber belt	Common
	– Supply and replacement of V belt pulley	Common
	– Supply and replacement of gear box for gear motor	Common
LM	– Supply and replacement of roller chain	Common

Component	Activity	Unit
Impactor - 1&2	– Supply and replacement of hydraulic connection (piping, hose, valve and connector)	Common
Dust Extraction System	– Supply and installation of dust extraction system	Common
Lime Tripper 1&2	– Supply and replacement of roller chain	Common
Lime Agitator	– Supply and replacement of Lime agitator – A&B	Common
MHP Hoist	– Servicing with required spares	Common

Plan 3: Ash handling system

The key activities to be executed by Your Entity for repair / overhaul of the Ash Handling System shall include, but not be limited to, the following. The indicative list of spares to be procured for the Ash Handling System have been detailed in Annexure 2, Mechanical, Plan 3.

Component	Activity	Unit
Air compressor - 7	– Supply and replacement of main oil filter	Common
	– Supply and replacement of bearing oil filter	Common
	– Supply and replacement of air suction filter	Common
	– Supply and replacement of separator filter	Common
	– Supply and replacement of HLP-68 oil	Common
	– Supply and replacement of minimum pressure valve assembly	Common
	– Supply and replacement of blowdown valve assembly	Common
	– Supply and replacement of actuator assembly	Common
	– Supply and replacement of air end servicing	Common
	– Supply and replacement of air cooler	Common
	– Supply and replacement of air discharge valve	Common
	– Supply and replacement of air butterfly valve	Common
	– Supply and replacement of waterline NRV	Common
	– Supply and replacement of rubber elbow	Common
	– Supply and replacement of flexible hose	Common
	– Supply and replacement of return line sight glass	Common

Component	Activity	Unit
	– Supply and replacement of coupling element	Common
	– Supply and replacement of cooler discharge NRV	Common
Air dryer	– Supply and replacement of compressor	Common
Rotary Ash Conditioner	– Supply and replacement spray bar assembly	Common
Vibrating screen – 1&2 and 3&4	– Supply and replacement screen mat	Common
	– Supply and replacement V-belt	Common
Bypass belts	– Supply and replacement ISMC-150 and ISA-65 for structure	Common
	– Supply and replacement carrying idler	Common
	– Supply and replacement of return idler	Common
TAPH transporter	– Supply and replacement of expansion bellow	Common
1st and 2nd field vent valve	– Supply and replacement of 80 NB SDD valve	Common
Ash transporter (200 ltr)	– Supply and replacement of 200 ltr top discharge transporter with valves	Common
Ash ESP	– Supply and replacement of 200 NB chain valve assembly for ESP 1&2	Common
	– Supply and replacement of 150 NB MS pipe for discharge lines for ESP – 1&2 Line – 1&2	Common
	– Supply and replacement of ERW MS 80 NB pipe for ESP – 1&2 Line – 1&2 vent line	Common
	– Supply and replacement of 65 NB MS pipe, 100 NB MS pipes for discharge lines for ESP – 1&2 Line – 3&4	Common
	– Supply and replacement of 150 NB KGV gate assembly for ESP – 1&2 Line – 1&2	Common
	– Supply and replacement of Gate 150 NB KGV for ESP – 1 Line – 3&4	Common
	– Supply and replacement of 150 NB KGV body, gland and deflector cone for ESP – 1 Line – 1&2	Common
	– Supply and replacement of 100 NB KGV gate assembly for ESP – 1&2 Line – 3&4	Common
	– Supply and replacement of Gate 100 NB KGV,	

Component	Activity	Unit
	Deflector code (100 NB KGV), Body (100 NB KGV), Gland (100 NB KGV) for ESP – 1 Line – 3&4	
Fly Ash Silo	– Supply and replacement of MS checkered plate for Fly Ash Silo – 1, 2, 3	Common
	– Supply and replacement of fluidizing felt for Fly Ash Silo – 1, 2, 3	Common
	– Supply and replacement of filter bag for Fly Ash Silo – 1	Common
	– Supply and replacement of cage for Fly Ash Silo – 1	Common
	– Supply and replacement of pneumatic cut off valve for Fly Ash Silo – 1	Common
Bed Ash Silo	– Supply and replacement of roller chain 1 inch	Common
	– Supply and replacement of filter bag	Common
Bottom Ash Transporters System	– Supply and replacement of bag filter house	Common
	– Supply and replacement of fluidizing panel	Common
	– Supply and replacement of buffer hopper body	Common
	– Supply and replacement of ash inlet valve- SDD 200 NB	Common
	– Supply and replacement of vent valve- SDD 65 NB	Common
	– Supply and replacement of bottom discharge ash transporter (1100 Ltr)	Common
	– Supply and replacement of air knife valve	Common
	– Supply and replacement of 80 NB ash discharge valve	Common
	– Supply and replacement of 50 NB Air Inlet Valve (Pneumatic Ball Valve)	Common
	– Supply and replacement of 40 NB Air Knife Valve (Pneumatic Ball Valve)	Common
	– Supply and replacement of 40 NB and 50 NB bronze NRV	Common
	– Supply and replacement of MS ERW 50 NB pipe (Airline)	Common
	– Supply and replacement of MS ERW 40 NB pipe (Airline)	Common
	– Supply and replacement of MS ERW 80 NB pipe (Discharge line)	Common
	– Supply and replacement of 80 NB basalt bend	Common

Component	Activity	Unit
	– Supply and replacement of 80 NB basalt pipe	Common
	– Supply and replacement of ERW 65 NB MS pipe	Common
	– Supply and replacement of 90° 50 NB and 40 NB bend	Common
	– Supply and replacement of 90° 50 NB and 40 NB tee	Common
Intermediate bed ash silo	– Supply and replacement of vent house filter bag and filter bag cage	Common
	– Supply and replacement of vent fan	Common
	– Supply and replacement of V-belt	Common
Ash transporter	– Supply and replacement of SDD 80 NB vent valve	Common
	– Supply and replacement of SDD 125 NB Ash discharge valve	Common
	– Supply and replacement of 80 NB MS pipe for vent line	Common
	– Supply and replacement of 125 NB MS pipe for discharge line	Common
	– Supply and replacement of 150 NB MS pipe for discharge line	Common
	– Supply and replacement of 125 NB basalt bend	Common
	– Supply and replacement of 150 NB basalt bend	Common
	– Supply and replacement of 65 NB MS pipe for discharge line	Common
	– Supply and replacement of 65 NB basalt bend	Common
	– Supply and replacement of 65 NB spool piece	Common
	– Supply and replacement of SDD 200 NB ash inlet valve	Common
	– Supply and replacement of 200 ltr bottom discharge transporter with valves	Common
Sea water line silo area	– Supply and replacement of 150 NB pipe	Common

Plan 4: Pumps

The key activities to be executed by Your Entity for repair / overhaul of the pumps shall include, but not be limited to, the following. The indicative list of spares to be procured for the pumps have been detailed in Annexure 2, Mechanical, Plan 4.

Component	Activity	Unit
Main BFP #2A	– Supply and replacement of discharge MOV for Main BFP #2A as per the specifications in Annexure 2, Mechanical, Plan 4	Unit 2
Sea water intake pump	– Servicing of pump along with supply and replacement of impeller, bell mouth, impeller guide piece, impeller shaft, head shaft, and transmission shaft as per the specifications in Annexure 2, Mechanical, Plan 4 for sea water intake pump B	Common
	– Servicing of pump along with supply and replacement of ratchet cover, journal bearing, cooling coil, thrust bearing housing, ratchet pin, ratchet housing, bowl, bearing holder for sea water intake pump B	Common
	– Servicing of pump along with supply and replacement of Thordon bearings and bearing spider as per the specifications in Annexure 2, Mechanical, Plan 4 for sea water intake pump B	Common
	– Servicing of pump along with supply and replacement of plasma coated sleeves as per the specifications in Annexure 2, Mechanical, Plan 4 for sea water intake pump B	Common
	– Servicing of pump along with supply and replacement column pipes as per the specifications in Annexure 2, Mechanical, Plan 4 for sea water intake pump B	Common
	– Servicing of pump along with supply and replacement of impeller, bell mouth, impeller guide piece, impeller shaft, head shaft, and transmission shaft as per the specifications in Annexure 2, Mechanical, Plan 4 for sea water intake pump C	Common
	– Servicing of pump along with supply and replacement of Thordon bearings and bearing spider as per the specifications in Annexure 2, Mechanical, Plan 4 for sea water intake pump C	Common
	– Servicing of pump along with supply and replacement of plasma coated sleeves as per the specifications in Annexure 2, Mechanical, Plan 4 for sea water intake pump C	Common
	– Servicing of pump along with supply and replacement of column pipes as per the specifications in Annexure 2, Mechanical, Plan 4 for sea water intake pump C	Common
	– Servicing of pump along with supply and replacement of ratchet cover, journal bearing, cooling coil, thrust bearing housing, ratchet pin, ratchet housing, bowl, bearing holder for sea	Common

Component	Activity	Unit
	water intake pump C	
CW / CCW pumps	– Overhauling of CW Pump A and C with consumables (thordon bearing, split ring, lower and upper sleeve, throttling CVP1200)	Common
	– Supply and replacement of CW Pump discharge	Common
	– Box-up post inspection, rectification, and installation of new components	Common
	– Hydro testing	Common
Condensate pumps	– Check internal / wear ring parts for erosion, if required repair and replace	Unit 1 and 2
	– Check for corrosion internally and externally	Unit 1 and 2
	– Check packings	Unit 1 and 2
	– Check bearing	Unit 1 and 2
	– Check impeller for cavitation	Unit 1 and 2
Good win pump	– Dismantling and handover of existing pump to owner	Common
	– Supply, erection and commissioning of new pump as per the specifications in Annexure 2, Mechanical, Plan 4 for Goodwin pump	Common
Jockey Pump	– Servicing of JP 101 and 102 pump along with spares	Common
Hydrant Pump	– Servicing of HP 301 and 302 along with spares	Common
Spray Pump	– Servicing of 2 pumps along with spares and consumables	Common
TWS backwash pump	– Supply, installation, erection and commissioning of 2 pumps with motors and foundation	Common
General services activities *(Across all pumps)*	– Dismantling the pumps for servicing – Cleaning and checking clearances, repair worn out parts such as bearings, wear rings, impeller, shaft sleeves, etc., as applicable – Checking condition of bearings, replacing / color match journals / thrust bearings as applicable – Reassembling the pump containing specified clearances – Checking coupling condition bolts, and bushings – Checking and repair / replace damaged parts – Aligning and coupling with drive – Taking trial runs of all pumps	Common

Plan 5: Turbine Auxiliaries

The key activities to be executed by Your Entity for repair / overhaul of Turbine Auxiliaries shall include, but not be limited to, the following. The indicative list of spares to be procured for Turbine Auxiliaries have been detailed in Annexure 2, Mechanical, Plan 5.

Component	Activity	Unit
MOT #1 & 2 and COT, DOT centrifuge	– Servicing with spares and consumables for MOT 1 and MOT 2 centrifuge as per the specifications in Annexure 2, Mechanical, Plan 5	Common
	– Supply and replacement of COT/DOT centrifuge (centrifuge to be of Indian make)	Common
	– Draining and cleaning MOT – Inspection of tank internals and damage to strainer mesh – Replacement, if required	Common
	– Cleaning all view glass / gauge glass and ensuring their leak proof functioning	Common
	– Dismantling and servicing all vapour extraction fans, as necessary	Common
	– Cleaning complete L.O piping up to bearings from L.O systems – Attending to all leaky joints	Common
	– Cleaning complete governing oil piping system, attending to all leaky joints	Common
HP / LP heaters	– Opening of top cover and flange and removing of top cover	Unit 1 and 2
	– Inspection and removal of tube nest clean tube / shell	Unit 1 and 2
	– Inspection and changing gaskets and sealing rings, etc.	Unit 1 and 2
	– Hydro test, plugging leaky tubes and box up	Unit 1 and 2
	– Servicing system line valves and safety valves	Unit 1 and 2
Deaerator	– Supply and replacement of spray nozzles for deaerators 1 & 2 as per the specifications in Annexure 2, Mechanical, Plan 5	Unit 1 and 2
	– Draining and opening manholes	Unit 1 and 2
	– Cleaning deaerator and fed storage tanks with wire brush	Unit 1 and 2
	– Inspecting deaerator, trays, steam spray nozzle, etc. and replacement of defective parts	Unit 1 and 2
	– Cleaning gauge glass – Changing packing / 'O' ring as required	Unit 1 and 2
	– Replacement of gasket, and box-up, after final inspection	Unit 1 and 2

Component	Activity	Unit
STG structure and platform	– Supply and replacement of STG structure, platform and railing as per the specifications in Annexure 2, Mechanical, Plan 5 – Painting of the STG structure, platform, and railing	Unit 1 and 2
Extraction steam piping system	– Visual inspection of housing inner surface for cracks	Unit 1 and 2
	– Checking inner surface of housing for cracks, if likely, also check outer surface	Unit 1 and 2
	– Checking seats for proper contact, damages and cracks	Unit 1 and 2
	– Surface crack test for seats	Unit 1 and 2
	– Visual inspection of internal valve parts such as discs, levers for cracks, deformation and erosion	Unit 1 and 2
	– Checking spindles for deformation and erosion	Unit 1 and 2
	– Checking clearance for guide bushes and conducting a visual inspection for grooves	Unit 1 and 2
	– Checking for unobstructed flow in drains	Unit 1 and 2
	– Opening and cleaning sludge containers	Unit 1 and 2
	– Checking condition of valve seat and spindles for drain valves	Unit 1 and 2
	– Checking functioning of drivers for drain valves	Unit 1 and 2
Evacuation system	– Check steam jet air ejectors jets for erosion, inspect the nozzles and if required, replace	Unit 1 and 2
	– Visual inspection of the complete steam jet air ejectors for corrosion and erosion	Unit 1 and 2
	– Check tube bundles on the water and steam side of the condenser for corrosion and erosion for steam jet air ejectors	Unit 1 and 2
	– Check tightness of condenser for steam jet air ejectors	Unit 1 and 2
	– Check interlocks and control of steam jet air ejectors	Unit 1 and 2
Fittings **- Manual slide valve** **- Motor-operated slide valve (suction slide valve)** **- Check**	– Check free movement of complete stroke – Check functioning of limit switch – Check valves – Check tightness of fittings	Unit 1 and 2

Component	Activity	Unit
valve - Air side piping		
Feed heating system	– Check protection equipment (High and low level, feedheater bypass control) for feedheater	Unit 1 and 2
	– Check characteristics of the control and the associated valves for feedheater	Unit 1 and 2
	– Disassemble valves, check seats, replace glands for feedheater	Unit 1 and 2
	– Replace waterbox seals for HP, LP feedheater	Unit 1 and 2
	– Test tightness by flooding the steam side of the feedheater	Unit 1 and 2
	– Inspect tubes on water side for cleanliness, erosion and corrosion for HP/LP feedheater	Unit 1 and 2
	– Check welds for cracks for HP/LP feedheater	Unit 1 and 2
	– Empty and clean feedwater tank (deaerator) and flash tanks	Unit 1 and 2
	– Check condensate inlet into deaerator for erosion and corrosion for feedwater tank and flash tanks	Unit 1 and 2

Plan 6: Steam Extraction System

The key activities to be executed by Your Entity for repair / overhaul of Steam Extraction System shall include, but not be limited to, the following. The indicative list of spares to be procured for Steam Extraction System have been detailed in Annexure 2, Mechanical, Plan 6.

Component	Activity	Unit
Main steam drain	– Supply and replacement of IBR valve (with existing or equivalent make valve) for Main Steam Drain MOV-102 and 112 as per the specifications in Annexure 2, Mechanical, Plan 6	Unit 1 and 2
HRH and CRH	– Supply and replacement of valve for HRH and CRH drain MOV (with existing or equivalent make valve) as per the specifications in Annexure 2, Mechanical, Plan 6	Unit 1 and 2
General service activities *(Across gland steam cooler, main ejector,*	– Checking nozzles and diffusers for erosion, clogging, etc. – Checking for correct alignment of nozzles, diffusers, etc. – Opening manholes and inspect tubes – Cleaning tubes / shell – Changing gaskets / seal rings – Hydro testing and plugging leaky tubes and box	Unit 1 and 2

Component	Activity	Unit
and starting ejector)	up – Checking for air leaks throughout the system	

Plan 7: Condensate System

The key activities to be executed by Your Entity for repair / overhaul of the Condensate System shall include, but not be limited to, the following. The indicative list of spares to be procured for the Condensate System have been detailed in Annexure 2, Mechanical, Plan 7.

Component	Activity	Unit
Condenser	– Inspect steam side	Unit 1 and 2
	– Visual inspection of the welds at the connections of extraction, bypass pipes etc for cracks	Unit 1 and 2
	– Check bottom of pipes for friction marks (vibration damages)	Unit 1 and 2
	– Check pipes for erosion and corrosion	Unit 1 and 2
	– Check tightness	Unit 1 and 2
	– Dismantle selected pipes and examine them in the laboratory	Unit 1 and 2
	– Inspect water side of condenser	Unit 1 and 2
	– Check pipes for blockage	Unit 1 and 2
	– Check pipes for erosion and corrosion	Unit 1 and 2
	– Check water boxes for deposits	Unit 1 and 2
	– Measure erosion of condenser tubes by special method	Unit 1 and 2
	– Check condition of pipe rolling plate	Unit 1 and 2
	– Check water box coating	Unit 1 and 2
	– Check condition and fastening of anodes	Unit 1 and 2
	– Supply and replacement of condenser tubes as per the specifications in Annexure 2, Mechanical, Plan 7. Complete retubing shall be carried out by Your Entity	Unit 1 and 2
	– Supply and replacement of rubber bellow and hanger support at Condenser CW inlet and outlet	Unit 1 and 2
	– Inspection of bends and patching and painting of piping including internal corrocoating at Condenser CW inlet and outlet	Unit 1 and 2
	– Supply and replacement of 1500 NB Butterfly Valve for Condenser 1 and 2	Unit 1 and 2
CW	– Replacement of six 1500 NB butterfly valves	Unit 1 and 2

Component	Activity	Unit
interconnection	– Reconditioning, painting and reinstallation of four 1500 NB butterfly valves	Unit 1 and 2
	– Supply and replacement of rubber bellow for CW interconnection pit	Common
	– Inspection, repair / replace / rectify protective coating for cooling water pipe inlet out outlet including 1500 NB isolation valves up to condenser with rubber expansion joint and hanger support	Common
Fittings	– Check free movement of complete stroke (including spring supports)	Unit 1 and 2
	– Check functioning of limit switch	Unit 1 and 2
Hotwell discharge (Condensate, seal steam)	– Check the control system and the corresponding valves	Common
	– If necessary, dismantle and adjust valves	Common

Plan 8: CCW System

The key activities to be executed by Your Entity for repair / overhaul of the CCW System shall include, but not be limited to, the following. The indicative list of spares to be procured for the CCW System have been detailed in Annexure 2, Mechanical, Plan 8.

Component	Activity	Unit
Main PHE – A, B, C	– Supply and replacement of eccentric reducer at PHE	Common

Plan 9: Compressors

The key activities to be executed by Your Entity for repair / overhaul of the Compressors shall include, but not be limited to, the following. The indicative list of spares to be procured for the Compressors have been detailed in Annexure 2, Mechanical, Plan 9.

Component	Activity	Unit
SAC	– Supply, replacement and commissioning of instrument air compressors as per the specifications in Annexure 2, Mechanical, Plan 9 for SAC – A, B, E	Common
IAC	– Supply, replacement and commissioning of instrument air compressors as per the specifications in Annexure 2, Mechanical, Plan 9 for IAC – A, C	Common
Fire Air	– Servicing of fire air compressor along with	Common

Component	Activity	Unit
Compressor	spares and consumables	
Pipe	– Supply, replacement and commissioning of MS pipes as per the specifications in Annexure 2, Mechanical, Plan 9	Common

Plan 10: CW system

The key activities to be executed by Your Entity for repair / overhaul of the CW System shall include, but not be limited to, the following. The indicative list of spares to be procured for the CW System have been detailed in Annexure 2, Mechanical, Plan 10.

Component	Activity	Unit
CT fan	– Supply and replacement of gearbox assembly, FRP blades, and driving shaft assembly as per the specifications in Annexure 2, Mechanical, Plan 10 for Unit 2 CT Fan 1, 2, 9 and Unit 1 CT fan 1, 2, 5	Unit 1 and 2
Butterfly valve	– Replacement of twelve 750NB butterfly valves with gearbox	Unit 1 and 2
	– Reconditioning of six 750NB butterfly valves	Unit 1 and 2
CT fan cell	– Supply and replacement of fills material and drift eliminator for cells as per the specifications in Annexure 2, Mechanical, Plan 10	Unit 1 and 2
Spray nozzles	– Replacement of spray nozzles	Unit 1 and 2
CT riser	– Supply and replacement of riser header piping and riser header bend as per the specifications in Annexure 2, Mechanical, Plan 10	Unit 1 and 2
CT blowdown line	– Replacement of 800 mtrs of blowdown line with corrocoating	Unit 1
CT I beam & railing	– Inspection, repairing, coating and painting of I beam and pipes for railing as per specifications in Annexure 2, Mechanical, Plan 10	Unit 1 and 2
	– Replacement of staircase with FRP	Unit 1 and 2
CW isolation gate	– Inspection and repairing with required spares and consumables	Common
Internal distribution pipe	– Replacement of piping for 9 cells (2250 mtrs)	Unit 1 and 2
CW	– Establishing a new anti-scalant cooling water dosing system with required pumps and	Unit 1 and 2

Component	Activity	Unit
Treatment facility	chemicals. Supply of chemicals shall be provided for 1 year	

Plan 11: Desalination System

The key activities to be executed by Your Entity for repair / overhaul of the Desalination System shall include, but not be limited to, the following. The indicative list of spares to be procured for the Desalination System have been detailed in Annexure 2, Mechanical, Plan 11.

Place	Activity	Unit
MED Plant	– Supply and replacement of pipes, elbows, bends, tee, dummy caps, flanges, spray headers along with SS welding to new elbows and existing flanges as per the specifications in Annexure 2, Mechanical, Plan 11	Common
MED Structure	– Supply and replacement of MED structure, platform and railing as per the specifications in Annexure 2, Mechanical, Plan 11	Common
	– Painting of the MED structure, platform, and railing	Common

Plan 12: Sea Water Treatment Plant

The key activities to be executed by Your Entity for repair / overhaul of the Sea Water Treatment Plant shall include, but not be limited to, the following. The indicative list of spares to be procured for the Sea Water Treatment Plant have been detailed in Annexure 2, Mechanical, Plan 12.

Place	Activity	Unit
Gravity sand filter	– Supply and replacement of pipeline, reducers, pipes and elbows with SS 316 welding as per the specifications in Annexure 2, Mechanical, Plan 12	Common
Flash mixture	– Procurement, erection, commissioning of complete assembly of flash mixture with motor and foundation frame, including grounding	Common
Sea water line	– Inspection, patching and internal corrocoating for 20% of internal surface area for 1500NB and 2200NB sea water line	Unit 1 and 2
Storage and measuring tanks	– Supply and replacement of main acid, main alkali storage tank	Common
	– Supply and replacement of acid and alkali measuring tank	Common

Place	Activity	Unit
	– Measurement and replacement of CVPC piping with support	Common
Thickener mechanism	– Overhauling with spares and consumables (bearing, oil seal, fasteners)	Common
Flocculator	– Supply and replacement of gear set consisting of pinion and bevel gear, and gear box as per the specifications in Annexure 2, Mechanical, Plan 12	Common
Pre-treatment plant	– Supply and replacement of GI gratings, hand railings, ISMC, MS Flat as per the specifications in Annexure 2, Mechanical, Plan 12 for PTP structure, platform and railing	Common
	– Measurement and replacement of PTP dosing piping and support	Common
	– Painting of the PTP structure, platform, and railing	Common
	– Measurement and replacement of CPVC piping and fitting for PTP and DM plant	Common
	– Supply and replacement of isolation gate for PTP stream	Common
Travelling water screen – A,B,C	– Overhauling of water screen with spares and consumables	Common
GSF Service and Backwash Valve	– Overhauling and replacement of seals for gearbox	Common
Electrochlorination Plant	– Supply and replacement of cells	Common
Intake channel	– Servicing and repairing of isolation gate with required spares and consumables	Common

Plan 13: Crane and Hoist

The key activities to be executed by Your Entity for repair / overhaul of the Crane and Hoist shall include, but not be limited to, the following. The indicative list of spares to be procured for the Crane and Hoist have been detailed in Annexure 2, Mechanical, Plan 13.

Place	Activity	Unit
Sea water intake pump	– Overhauling of crane including long travel and cross travel for 5 TR gantry crane at sea water intake pump	Common

Place	Activity	Unit
Main turbine	– Overhauling of crane including long travel and cross travel for 70 TR & 20 TR crane at main turbine	Unit 1 and 2
CW pump house	– Overhauling of crane including long travel and cross travel for 25 TR gantry crane at CW pump house	Common

Plan 14: RO Plant

The key activities to be executed by Your Entity for repair / overhaul of the RO Plant shall include, but not be limited to, the following. The indicative list of spares to be procured for the RO Plant have been detailed in Annexure 2, Mechanical, Plan 14.

Place	Activity	Unit
Polyelectrolyte dosing station	– Supply and replacement of tank, pumps, motor, and air blower – B as per the specification in Annexure 2, Mechanical, Plan 14	Common
Nutrient dosing station	– Supply and replacement of tank, agitator, and agitator motors as per the specification in Annexure 2, Mechanical, Plant 14	Common
Hypo dosing system	– Supply and replacement of dosing tank, pumps, and agitator as per the specification in Annexure 2, Mechanical, Plan 14	Common
Bisulphite dosing system	– Supply and replacement of dosing tank, pumps, and agitator as per the specification in Annexure 2, Mechanical, Plan 14	Common
Acid dosing station	– Supply and replacement of dosing tanks and pumps as per the specification in Annexure 2, Mechanical, Plan 14	Common
Antiscalent dosing station	– Supply and replacement of dosing tanks, pumps, and agitator as per the specification in Annexure 2, Mechanical, Plan 14	Common
	– Overhauling of existing pumps	Common
Filter backwash pump	– Supply and replacement of Pump – A and HP Feed Pump – B and Energy Recovery Turbine-B for filter backwash pump as per the specification in Annexure 2, Mechanical, Plan 14	Common
RO cleaning unit	– Supply and replacement of tanks, pumps, and agitator as per the specification in Annexure 2, Mechanical, Plan 14	Common

Place	Activity	Unit
Filter Feed Pump	– Supply and replacement of Pump – A Motor	Common
Filter Tanks	– Supply and replacement of filter tanks after filtration from pressure sand filters and activated carbon filters as per the specifications in Annexure 2, Mechanical, Plan 14	Common
Sludge recycling (system) pumps	– Supply and replacement of sludge recycle system pumps	Common
Secondary clarifier system	– Supply and replacement of gearbox	Common
Filter backwash blower	– Supply and replacement of Air blower A and B	Common
Caustic dosing tank	– Supply and replacement of caustic dosing tank	Common
Dosing pump	– Supply and replacement of dosing pump	Common
Draw back tank	– Supply and replacement of drawback tank of 3000 liters size	Common
RO plant membrane	– Supply and replacement of RO plant membrane, with additional spares	Common

Plan 15: Valves

The key activities to be executed by Your Entity for repair / overhaul of Valves shall include, but not be limited to, the following. The indicative list of spares to be procured for Valves have been detailed in Annexure 2, Mechanical, Plan 15

Place	Activity	Unit
Kinematic Air Release Valve (CW system)	– Supply and replacement of complete assembly of kinematic air release valve as per the specification in Annexure 2, Mechanical, Plan 15	Unit 1 and 2

Plan 16: Air Conditioning and Air Handling

The key activities to be executed by Your Entity for repair / overhaul of Air Conditioning and Air Handling Systems shall include, but not be limited to, the following. The indicative

list of spares to be procured for Air Conditioning and Air Handling Systems have been detailed in Annexure 2, Mechanical, Plan 16

Place	Activity	Unit
Air conditioning system	– Revival of the air conditional system in the main building	Common
	– Overhauling of air conditioning system and AC for control room with required spares	Common

1.1.2.4. Overhaul Plan (Electrical)

Your Entity shall be responsible for performing comprehensive Overhaul of all the Electrical systems in the Plant. The list of activities to be carried out, across all key components, have been detailed below as Plan 1 to 16.

Plan 1: CT/CVT

The key activities to be executed by Your Entity for repair / overhaul of CT/CVT shall include, but not be limited to, the following. The indicative list of spares to be procured for CT/CVT have been detailed in Annexure 2, Electrical, Plan 1

Place	Activity	Unit
Switchyard	– Supply and replacement of switchyard, CT, and CVT	Common

Plan 2: Switchyard

The key activities to be executed by Your Entity for repair / overhaul of Switchyard shall include, but not be limited to, the following. The indicative list of spares to be procured for the Switchyard have been detailed in Annexure 2, Electrical, Plan 2

Place	Activity	Unit
Line and GT ABT energy meter	– Dismantling and depositing existing equipment in store	Common
	– Supply, installation, testing and commissioning of ABT meters	Common
220kV insulators	– Supply and application of RTV coating on all porcelain insulator surface of breakers, CT, PT, CVT, PI, LA, GT bushings etc. of all 8 bays	Common
Isolators	– Supply and replacement of 3 phase isolating rods sets and isolator sets with porcelain insulators as per Annexure 2, Electrical, Plan 2	Common
220kV breaker pole	– Supply, replacement, testing and commissioning of 220kV line breaker pole	Common
220kV wave trap	– Supply, replacement, testing and commissioning	Common

Place	Activity	Unit
	of 220kV wave trap	
220kV SRI	– Supply and replacement of 220kV bays SR insulators as per the specifications in Annexure 2, Electrical, Plan 2	Common
220kV support insulators	– Supply and replacement of 220kV bays support insulators	Common
220kV bays connectors	– Supply and replacement of 220kV bays connectors for all bays as per the specifications in Annexure 2, Electrical, Plan 2	Common
220kV breaker AR	– Supply and replacement of 220kV breaker AR switches as per the specifications in Annexure 2, Electrical, Plan 2	Common
220kV breaker gas density switch	– Supply and replacement of 220kV breaker gas density switches as per the specifications in Annexure 2, Electrical, Plan 2	Common
220kV protection relays	– Supply and replacement of 220kV protection relays	Common
220kV switchyard RTU	– Supply, replacement, testing and commissioning of fiber channel switch, power model unit and GPS time syncho server	Common
GT and UAT	– Supply and replacement of GT & UAT buchhloz relay	Common
PLCC System	– Supply and replacement of new panel	Common
	– Testing of all electrical equipment (Tan delta test)	Common

Plan 3: Cables

The key activities to be executed by Your Entity for repair / overhaul of Cables shall include, but not be limited to, the following. The indicative list of spares to be procured for the Cables have been detailed in Annexure 2, Electrical, Plan 3

Place	Activity	Unit
220kV switchyard lines	– Supply and replacement of 220kV switchyard lines PLCC cable	Common
HT/LT cables	– Supply and replacement (if required) of 11kV HT cables and 1.1kV LT cables	Common

Plan 4: Battery Bank

The key activities to be executed by Your Entity for repair / overhaul of Battery Bank shall include, but not be limited to, the following. The indicative list of spares to be procured for the Battery Bank have been detailed in Annexure 2, Electrical, Plan 4

Place	Activity	Unit
Various locations	– Supply and replacement of battery bank, UPS-1, 2, Main DC-1, 2, battery model	Unit 1 and 2
Switchyard	– Supply and replacement of 410AH battery bank for Switchyard	Common

Plan 5: Turbine Generator

The key activities to be executed by Your Entity for repair / overhaul of TG electrical shall include, but not be limited to, the following. The indicative list of spares to be procured for the TG have been detailed in Annexure 2, Electrical, Plan 5

Place	Activity	Unit
Auto bus transfer system	– Turnkey supply, installation, testing and commissioning of 6.6 kV Board Auto Bus transfer system	Unit 1 & Unit 2
Generator	– Supply and replacement of generator transducers	Unit 1 & Unit 2
	– Supply and replacement of generator bellows and filters and generator duct bellows	Unit 1 and 2
Relay	– Supply and replacement of relays	Unit 1 and 2
Excitation system	– Supply and replacement of excitation cards	Unit 1 and 2
	– Supply and replacement of excitation x'mer protection relays	Unit 1
TG Cathodic Protection System	– Supply and replacement of cathodic protection system	Common
Battery Room	– Supply and replacement of exhaust fan	Common
Plant toilet area	– Supply and replacement of exhaust fan	Common
GCB	– Supply and replacement of GCB MIMIC diagram PCB card	Unit 1 and 2
	– Inspection, correction, including supply and replacement, if required of generator Circuit breaking System including GCB SF6 top up, gas density switch, 15.75KV level GCB, Isolator and .earth switches, their local and remote operation system. ABB make GCB MIMIC diagram PCB cards shall be supplied and replaced. Overhauling of GCB, Testing of GCB including contact Resistance, Timming, Pressure measurement and calibration, etc	Unit 1 and 2
GRP	– Supply and replacement of voltage balance relay, AC voltage transducer, frequency transducer and AC current transducer	Common
	– Testing, defect attending, including supply and	Common

Place	Activity	Unit
	replacement of defective / non-functional accessories, including relays, etc.	
	– Inspection and calibration of meters (tariff, etc.)	Common
CT/PT and their panels	– Inspection, preventive maintenance, including supply and replacement of defective / non-functional accessories, if required	Unit 1 and 2
Bus duct system	– Inspection, cleaning, supply and replacement of bus duct insulators, as needed	Unit 1 and 2
	– Inspection, Supply and replacement of all bus duct rubber bellows	Unit 1 and 2
	– Inspection and tightness of conducting pipes and flexible connection	Unit 1 and 2
Pressurization system	– Revival, inspection, correction, including supply and replacement, if required of generator bus duct pressurization system (including compressor, dryer, valves, piping, and monitoring system)	Unit 1 and 2
TG Lube Oil System	– Inspection, correction, including supply and replacement if required, of TG lub, barring and jacking oil system including DC EOP, JOP and AC JOP, AOP, Oil extraction fan, Centrifuge pump, Hydraulic oil pump, etc and related electrical system	Unit 1 and 2
Hot air generation system	– Revival, inspection, correction, including supply and replacement, if required of Hot air generation system for generator.	Unit 1 and 2
Neutral Grounding System	– Inspection, correction, including supply and replacement, if required of generator neutral grounding system including Neutral Grounding Transformer (NGT), Neutral Grounding Resistor (NGR). Neutral bus duct and Conducting piping system, rubber bellow shall be inspected and corrected for normal functioning if required	Unit 1 and 2

Plan 6: Lighting

The key activities to be executed by Your Entity for repair / overhaul of lighting shall include, but not be limited to, the following. The indicative list of spares to be procured for the lighting have been detailed in Annexure 2, Electrical, Plan 6

Place	Activity	Unit
Plant Area (Boiler, TG, Switchyard, BOP, MHP-AHP)	– Design, supply, installation and commissioning of LED fixtures and lighting panels	Common
	– Supply, installation and commissioning of power cables	Common
	– Design, supply, installation and commissioning of	Common

Place	Activity	Unit
	GI conduit, L clamp and GI pole	
	– Design, supply, installation and commissioning of 12 mtr high mast with civil works and incoming power cable	Common
Plant Area (BOP)	– Design, supply, installation and commissioning of 100 W LED lights	Common
	– Design, supply, installation and commissioning of lighting panels	Common
Plant Area (TG)	– Design, supply, installation and commissioning of 100 W LED lights	Common
	– Design, supply, installation and commissioning of lighting panels	Common
Plant Area (MHP)	– Design, supply, installation and commissioning of 100 W LED lights	Common
	– Design, supply, installation and commissioning of lighting panels	Common
Plant Boundary	– Design, supply, installation and commissioning of flood light poles	Common
	– Design, supply, installation and commissioning of lighting panels	Common
	– Design, supply, installation and commissioning of armored power cable	Common
	– Design, supply, installation and commissioning of 12 mtr high mast	Common

Plan 7: Actuators

The key activities to be executed by Your Entity for repair / overhaul of actuators shall include, but not be limited to, the following. The indicative list of spares to be procured for the actuators have been detailed in Annexure 2, Electrical, Plan 7

Place	Activity	Unit
CW Pump	– Supply, replacement, testing and commissioning of TBG assembly for Auma make SA25 actuator	Common
Auma make Actuator spares	– Supply, replacement, testing and commissioning for Auma make actuators spares across the plant	Unit 1 and 2
Rotork make actuator	– Supply, replacement, testing and commissioning for Rotork make actuators spares across the plant	Unit 1 and 2

Plan 8: Motors

The key activities to be executed by Your Entity for repair / overhaul of motors shall include, but not be limited to, the following. The indicative list of spares to be procured for the motors have been detailed in Annexure 2, Electrical, Plan 8

Place	Activity	Unit
CT fan	– Supply, replacement, testing and commissioning of CT fan motors	Unit 1 and 2
Centrifuge feed pump	– Supply, replacement, testing and commissioning of centrifuge feed pump motor	Common
PE Dosing	– Supply, replacement, testing and commissioning of chemical house PE dosing motor and PE dosing agitator motor	Common
Antifoam dosing	– Supply, replacement, testing and commissioning of antifoam dosing motor	Common
Antiscalent dosing	– Supply, replacement, testing and commissioning of antiscalent dosing motor	Common
Acid cleaning motor	– Supply, replacement, testing and commissioning of acid cleaning motor	Common
Distillate pump	– Supply, replacement, testing and commissioning of distillate pump motor	Common
Motive water pump	– Supply, replacement, testing and commissioning of motive water pump motor	Common
BFP OVEF	– Supply, replacement, testing and commissioning of OVEF motor	Unit 1
Lignite UBF	– Supply, replacement, testing and commissioning of lignite UBF motors	Common
Stackers and reclaimers	– Supply, replacement, testing and commissioning of vibro feeder motor for stacker and reclaimer	Common
HT Motor	– Supply and replacement of bearings across HT motors as per the specifications in Annexure 2, Electrical, Plan 8	Common
	– Servicing and cleaning of motors	Common
	– Disconnecting cables and earthing strip. Decoupling motor and removing coupling half	Common
	– Loosening foundation bolts and shift motor to work shed if necessary	Common
	– Removing rotor from stator, and cleaning and inspecting rotor stator for wedge tightness cracks and varnish coat	Common
	– Rectifying defects and spray insulating varnish	Common
	– Inspection of bearings and replacement if needed	Common
	– Assembling rotor/stator. Checking bearing/oils and replacing if damaged. Checking blue matching and	Common

Place	Activity	Unit
	adjusting clearances.	
	– Adjusting air gap and magnetic center	Common
	– Mounting air coolers. Connecting electrical cables, earthing and instrumentation	Common
	– Measuring IR valve and taking no load trial run	Common
CW Pump	– Overhauling including bearing replacement of HT motors of CW motors (A, B, C, E) with spares	Common
Lignite impactor	– Supply and replacement of lignite impactor motors	Common

Plan 9: Exhaust Fans

The key activities to be executed by Your Entity for repair / overhaul of exhaust fans shall include, but not be limited to, the following. The indicative list of spares to be procured for the exhaust fans have been detailed in Annexure 2, Electrical, Plan 9

Place	Activity	Unit
TG roof	– Supply and replacement of TG roof exhaust fan	Common
SWTP	– Supply and replacement of axial exhaust fans	Common
Switchyard	– Supply and replacement of axial exhaust fans	Common
Diesel Generator	– Supply and replacement of axial exhaust fans	Common
MHP	– Supply and replacement of 3.7 kW axial exhaust fans	Common
	– Supply and replacement of 0.55 kW axial exhaust fans	Common

Plan 10: DG

The key activities to be executed by Your Entity for repair / overhaul of DG shall include, but not be limited to, the following. The indicative list of spares to be procured for the DG have been detailed in Annexure 2, Electrical, Plan 10

Place	Activity	Unit
DG	– Supply, replacement, testing and commissioning of DG set and panel spares as per the specifications in Annexure 2, Electrical, Plan 10	Common
	– Supply, replacement, testing and commissioning of DG kV battery charger	Common
	– Complete servicing of DG 1 and 2 with spares	Common

Plan 11: SWTP

The key activities to be executed by Your Entity for repair / overhaul of SWTP shall include, but not be limited to, the following. The indicative list of spares to be procured for the SWTP have been detailed in Annexure 2, Electrical, Plan 11

Place	Activity	Unit
SWTP	– Supply and replacement of GSF MOVs in the PTP area	Common
	– Supply and replacement of SWTP MCC micromaster 420 VFD	Common

Plan 12: GT/UAT/ST

The key activities to be executed by Your Entity for repair / overhaul of GT/UT/UAT shall include, but not be limited to, the following. The indicative list of spares to be procured for GT/UT/UAT have been detailed in Annexure 2, Electrical, Plan 12.

Kindly note, the GT for Unit-2 shall be excluded from the scope of Your Entity.

Activities for Overhaul of GT#1, UAT#1 and #2, ST:

Place	Activity	Unit
GT#1/UAT#1 and #2/ST	– Draining of oil from the transformer into storage tank. Old oil to be property of owner.	Unit 1 and 2
	– Supply of storage tank (4 tanks * 30 kilo litres) on rental basis	Unit 1 and 2
	– Supply of oil filtration machine	Unit 1 and 2
	– Opening of inspection covers.	Unit 1 and 2
	– Thorough inspection of the transformer from inspection covers as far as accessible.	Unit 1 and 2
	– If the defect is located and can be rectified at site with use of minor insulation materials, rectification to be carried out.	Unit 1 and 2
	– Supply and replacement of gasket across all transformers	Unit 1 and 2
	– Supply and replacement of WTI and OTI meters across all transformers	Unit 1 and 2
	– Supply and replacement of cooling fans with motors	Unit 1 and 2
	– Repairing of station transformer with manual and auto RECP scheme	Unit 1 and 2
	– Repair of SPBD for GT and IPBD for UAT	Unit 1 and 2
	– Oil leakage arresting	Unit 1 and 2
	– Nitrogen filling and testing for 24 hours	Unit 1 and 2
	– Boxing of the transformer to be done.	Unit 1 and 2

Place	Activity	Unit
	– Dry out of transformer to be carried out followed by vacuum pulling and oil filling.	Unit 1 and 2
	– Supply and replacement of oil and oil filtration and handing over the transformer for commissioning.	Unit 1 and 2
Excitation Transformer	– Inspection, preventive maintenance, including supply and replacement of defective / non-functional accessories, if required – Inspect excitation protection relay and replace if needed	Unit 1 and 2

Plan 13: CW and CCW System

The key activities to be executed by Your Entity for repair / overhaul of CW/CCW system shall include, but not be limited to, the following. The indicative list of spares to be procured for the CW/CCW system have been detailed in Annexure 2, Electrical, Plan 13

Place	Activity	Unit
CT Tower	– Supply, replacement, testing and commissioning, including preparation of new earth pit	Unit 1 and 2
	– Supply and replacement of CT fan MCC feeder	Common
CW Movs	– Supply and replacement of CW Discharge Mov	Common

Plan 14: MHP

The key activities to be executed by Your Entity for repair / overhaul of MHP shall include, but not be limited to, the following. The indicative list of spares to be procured for the MHP have been detailed in Annexure 2, Electrical, Plan 14

Place	Activity	Unit
MHP MD	– Supply and replacement of metal detector	Common
MHP Panel Protection Relay	– Supply and replacement of HT panel protective relay as per the specifications in Annexure 2, Electrical, Plan 14	Common
Chute vibrator panel	– Supply and replacement of chute vibrator panel as per the specifications in Annexure 2, Electrical, Plan 14	Common

Plan 15: Cranes and Hoists

The key activities to be executed by Your Entity for repair / overhaul of cranes and hoists shall include, but not be limited to, the following. The indicative list of spares to be procured for the same have been detailed in Annexure 2, Electrical, Plan 15

Place	Activity	Unit
CCW	– Complete servicing with spares of the 5-ton capacity CCW crane – Complete servicing with spares of the 3-ton capacity CCW crane	Common
Workshop	– Complete servicing with spares of the 10-ton capacity workshop crane – Complete servicing with spares of the 5-ton capacity workshop crane	Common
Compressor house	– Complete servicing with spares of the 5-ton capacity compressor house crane	Common
MHP	– Complete servicing with spares of the 7.5-ton capacity hoist at lignite dump hopper – Complete servicing with spares of the 2-ton capacity crane at TP-01 – Complete servicing with spares of the 2-ton capacity crane at TP-02 – Complete servicing with spares of the 15-ton capacity hoist crane at PCH ILMS floor – Complete servicing with spares of the 15-ton capacity hoist crane at SCH ILMS floor – Complete servicing with spares of the 2-ton capacity hoist crane at SCH CR1 head – Complete servicing with spares of the 15-ton capacity SCH Impactor rotor hoist crane – Complete servicing with spares of the 7.5-ton capacity SCH Impactor rotor hoist crane – Complete servicing with spares of the 2-ton capacity hoist crane at belt feeder 9 – Complete servicing with spares of the 2-ton capacity hoist crane at belt feeder 10 – Complete servicing with spares of the 2-ton capacity hoist crane at screen floor – Complete servicing with spares of the 10-ton capacity hoist crane at screen top – Complete servicing with spares of the 15-ton capacity hoist crane at screen house ILMS floor – Complete servicing with spares of the 2-ton capacity hoist crane at TP-03 4A-4B floor – Complete servicing with spares of the 3-ton capacity hoist crane at bunker floor – Complete servicing with spares of the 2-ton capacity hoist crane at SR1 drive house – Complete servicing with spares of the 15-ton capacity hoist crane at lime dump hopper apron feeder floor – Complete servicing with spares of the 2-ton capacity hoist crane at TP-04 LM-01 drive floor – Complete servicing with spares of the 2-ton capacity hoist crane at LM-02 drive house – Complete servicing with spares of the 5-ton capacity hoist crane at lime crusher house UBF floor – Complete servicing with spares of the 10-ton capacity	Common

Place	Activity	Unit
	hoist crane at lime crusher house IMP floor – Complete servicing with spares of the 10-ton capacity hoist crane at lime crusher house ILMS floor – Complete servicing with spares of the 3-ton capacity hoist crane at lime bunker house	

Plan 16: Miscellaneous Electric

The key activities to be executed by Your Entity for repair / overhaul of miscellaneous electric items shall include, but not be limited to, the following. The indicative list of spares to be procured for the same have been detailed in Annexure 2, Electrical, Plan 15

Place	Activity	Unit
11 kV VCB	– Supply and replacement (including civil works) of 11kV pole, pole D.O switch, breaker, connecting power and control cable and relays	Common
Fire Pump House	– Supply and replacement of LT breaker as per the specifications in Annexure 2, Plan 15, Electrical	Common
	– Supply and replacement of MCC HP and bus coupler breaker	Common
CW/Intake/ Fire pump house	– Supply and replacement of crane hoist	Common
HT Breakers	– Supply and replacement of HT breaker parts as per the specifications in Annexure 2, Electrical, Plan 15	Unit 1 and 2
LT MCC SFU	– Supply and replacement of LT board/LT MCC SFU as per the specifications in Annexure 2, Electrical, Plan 15	Common
Numerical relays	– Testing and calibration of 7SJ 61, 7SJ 62, 7SJ 64 relays	Common
Colony	– Supply and installation of FRP roof for all panels and repairing of enclosures	Common

1.1.2.5. Overhaul Plan (Control and Instrumentation)

Your Entity shall be responsible for performing comprehensive Overhaul of all the Control and Instrumentation systems in the BOP Package. The list of activities to be carried out, across all key components, have been detailed below as Plan 1 to 7.

Plan 1: Boiler and Turbine Auxiliaries

The key activities to be executed by Your Entity for repair / overhaul of the Boiler and Turbine Auxiliaries shall include, but not be limited to, the following items in the table. The indicative list of spares to be procured for the Boiler and Turbine Auxiliaries have been

detailed in Annexure 2, C&I, Plan 1. Your Entity shall supply and install all the hardware within battery limits for all the field instruments mentioned in this plan.

Component	Activity	Unit
Boiler and turbine auxiliaries	– Supply and replacement of pressure gauges for Boiler, Turbine, and BOP discharge pumps as per the specifications in Annexure 2, C&I, Plan 1	Unit 1 and 2
	– Supply and replacement of temperature gauges for Boiler, Turbine, and BOP systems as per the specifications in Annexure 2, C&I, Plan 1	Unit 1 and 2
	– Supply and replacement of level transmitters for LP heater 2 & 3 as per the specification in Annexure 2, C&I, Plan 1	Unit 1 and 2
	– Supply and replacement of turbine extraction flow transmitter	Unit 1 and 2
Boiler feed pump	– Supply and replacement of scoop speed controllers as per the specifications in Annexure 2, C&I, Plan 1	Unit 2
	– Supply and replacement of reheater O/L pressure transmitter and BFP group crossover flow transmitter as per the specifications in Annexure 2, C&I, Plan 1	Unit 2
Condensate extraction pumps	– Supply and replacement of filter DP pressure switch, discharge pressure switch, and vibration switches as per the specifications in Annexure 2, C&I, Plan 1	Unit 2
Turbine steam extraction deaerator	– Erection, commissioning and installation dissolved oxygen analyzer and extraction NRV seal kit for HPH 5&6 and LPH 2 as per the specifications in Annexure 2, C&I, Plan 1	Unit 1 and 2
Turbine steam extraction CRH	– Erection, commissioning and installation of flow transmitter and extraction NRV seal kit as per the specifications in Annexure 2, C&I, Plan 1	Unit 1 and 2
Turbine steam extraction block	– Supply and replacement of limit switch for block valve and flow meter valve as per the specification in Annexure 2, C&I, Plan 1	Unit 1 and 2
Turbine steam inlet	– Supply and replacement of LVDT in the turbine steam inlet valve as per the specification in Annexure 2, C&I, Plan 1	Unit 2
Turbo Supervisory	– Supply and install probes for HP/IP/LP casing expansion and HP/IP/LP differential expansion as per the specifications in Annexure 2, C&I, Plan 1	
MOT	– Supply and replacement of flow switch for the MOT centrifuge as per the specification in Annexure 2, C&I, Plan 1	Unit 1 and 2

Component	Activity	Unit
	– Supply and replacement of pressure and temperature transmitters for MOT pump as per the specification in Annexure 2, C&I, Plan 1	Unit 1 and 2
Condenser	– Supply and replacement of level transmitters as per the specification in Annexure 2, C&I, Plan 1	Unit 2
HPH 5&6	– Supply and replacement of feedback and level transmitters as per the specification in Annexure 2, C&I, Plan 1	Unit 2
Hotwell	– Supply and replacement of conductivity meters for the hot well as per the specification in Annexure 2, C&I, Plan 1	Unit 2
Impulse line	– Supply and replacement of impulse line as per the specification in Annexure 2, C&I, Plan 1	Unit 1 and 2
Hogger/ejector	– Erection, commissioning and installation of flow meter	Unit 1 and 2
HRH and CRH steam flow transmitter	– Erection, commissioning and installation of HRH and CRH steam flow transmitters as per the specification in Annexure 2, C&I, Plan 1	Unit 1 and 2

Plan 2: Compressor

The key activities to be executed by Your Entity for repair / overhaul of the Compressor shall include, but not be limited to, the following items in the table. The indicative list of spares to be procured for the Compressor have been detailed in Annexure 2, C&I, Plan 2. Your Entity shall supply and install all the hardware within battery limits for all the field instruments mentioned in this plan

Component	Activity	Unit
All Compressors	– Erection, commissioning and installation of vibration switches as per the specifications in Annexure 2, C&I Plan 2	Common

Plan 3: CW Pump House

The key activities to be executed by Your Entity for repair / overhaul of the CW Pump House shall include, but not be limited to, the following items in the table. The indicative list of spares to be procured for the CW Pump House have been detailed in Annexure 2, C&I, Plan 3. Your Entity shall supply and install all the hardware within battery limits for all the field instruments mentioned in this plan

Component	Activity	Unit

Component	Activity	Unit
CW pump house	– Supply and replacement of flow transmitters, RRM sensors, sump level switches and, wet bulb temperature transmitter for cooling tower (hygrometer as per the specifications in Annexure 2, C&I, Plan 3	Common
CW forbay	– Supply and replacement of level transmitter as per the specifications in Annexure 2, C&I, Plan 3	Common

Plan 4: Material Handling System

The key activities to be executed by Your Entity for repair / overhaul of the Material Handling System shall include, but not be limited to, the following items in the table. The indicative list of spares to be procured for the Material Handling System have been detailed in Annexure 2, C&I, Plan 4. Your Entity shall supply and install all the hardware within battery limits for all the field instruments mentioned in this plan

Component	Activity	Unit
Lignite conveyor	– Supply and replacement of pull cord switches and belt sway switches and belt weigher as per the specifications in Annexure 2, C&I, Plan 4	Common
Lignite bunker	– Supply and replacement of lignite bunker level sensors as per the specifications in Annexure 2, C&I, Plan 4	Unit 1 and 2
Lignite and lime impactor	– Supply and replacement of vibration switches as per the specifications in Annexure 2, C&I, Plan 4	Common
Lignite and lime sizer	– Supply and replacement of vibration switches as per the specifications in Annexure 2, C&I, Plan 4	Common

Plan 5: Ash Handling System

The key activities to be executed by Your Entity for repair / overhaul of the Ash Handling System shall include, but not be limited to, the following items in the table. The indicative list of spares to be procured for the Ash Handling System have been detailed in Annexure 2, C&I, Plan 5. Your Entity shall supply and install all the hardware within battery limits for all the field instruments mentioned in this plan

Component	Activity	Unit
Fly ash silo	– Supply and replacement of fluidizing SOV, fluidizing system sequential timer, and KGV valve as per the specifications in Annexure 2, C&I, Plan 5	Common
Ash transporter	– Supply and replacement of discharge pressure gauge as per the specifications in Annexure 2, C&I, Plan 5	Common
Air dryer	– Supply and replacement of air dryer sensor as per	Common

Component	Activity	Unit
	the specifications in Annexure 2, C&I, Plan 5	

Plan 6: Sea Water Treatment Plant

The key activities to be executed by Your Entity for repair / overhaul of the Sea Water Treatment Plant shall include, but not be limited to, the following items in the table. The indicative list of spares to be procured for the Sea Water Treatment Plant have been detailed in Annexure 2, C&I, Plan 6. Your Entity shall supply and install all the hardware within battery limits for all the field instruments mentioned in this plan

Component	Activity	Unit
MED plant	– Supply and replacement of cooling water control valves, condensate control valve, PRDS steam pressure control valve positioners, and brine level control valve positioners as per the specifications in Annexure 2, C&I, Plan 6	Common
	– Supply and replacement of flow transmitters, feedwater flow transmitters, steam flow transmitters, and steam inlet pressure transmitters as per the specifications in Annexure 2, C&I, Plan 6 – Provide common earthing for all the electromagnetic flow transmitters	Common
	– Supply and replacement of condensate conductivity meters, temperature and pressure gauges, and stop valve cylinders as per the specifications in Annexure 2, C&I, Plan 6	Common
Pre-treatment plant	– Supply and replacement of services valves, backwash valves, airline valves, SOV for all valves, and DP transmitters as per the specifications in Annexure 2, C&I, Plan 6	Common
Reject water	– Supply and replacement of PH sensor, RTD sensor, TSS sensor, and reject pump vibration switches as per the specifications in Annexure 2, C&I, Plan 6	Unit 1 and 2
Intake pump	– Supply and replacement of motor vibration switches as per the specifications in Annexure 2, C&I, Plan 6	Common

Plan 7: ACW / CCW Systems

The key activities to be executed by Your Entity for repair / overhaul of the ACW / CCW Systems shall include, but not be limited to, the following items in the table. The indicative list of spares to be procured for the ACW / CCW Systems have been detailed in Annexure 2, C&I, Plan 7. Your Entity shall supply and install all the hardware within battery limits for all the field instruments mentioned in this plan

Component	Activity	Unit
ACW and CCW Pump	– Supply and replacement of discharge pressure transmitters for ACW and CCW pump as per the specifications in Annexure 2, C&I, Plan 7	Common
	– Supply and replacement of ACW and CCW pump vibration switches and ACW and CCW motor vibration switches as per the specifications in Annexure 2, C&I, Plan 7	Common
	– Supply and replacement of ACW and CCW pump DE/NDE bearing RTDs as per the specifications in Annexure 2, C&I, Plan	Common
PHE	– Supply and replacement of CCW and ACE inlet and outlet pressure transmitters and CCW I/L and O/L conductivity meters as per the specifications in Annexure 2, C&I, Plan 7	Common
	– Supply and replacement of PHE sea water inlet and outlet pressure transmitter	Common
CCW suction line	– Supply and replacement of CCW suction line pressure transmitter as per the specifications in Annexure 2, C&I, Plan	Common

Plan 8: Miscellaneous Systems

The key activities to be executed by Your Entity for repair / overhaul of the Miscellaneous Systems shall include, but not be limited to, the following items in the table. The indicative list of spares to be procured for the Miscellaneous Systems have been detailed in Annexure 2, C&I, Plan 8. Your Entity shall supply and install all the hardware within battery limits for all the field instruments mentioned in this plan.

Component	Activity	Unit
EPABX system	– Supply and installation of a 200-line EPABX system in the plant area with intercom and cable connections	Common
	– Supply and installation of a 300-line EPABX system in the colony area with intercom and cable connections	Common

1.1.2.6. Overhaul Plan (Supporting functions)

Your Entity shall be responsible for performing comprehensive Overhaul of all the supporting functions in the BOP Package. The list of activities to be carried out, across all key components, have been detailed below as Plan 1 to 3.

Plan 1: Fire and safety

The key activities to be executed by Your Entity for repair / overhaul of the fire and safety systems shall include, but not be limited to, the following items in the table. The indicative list of spares to be procured for the fire and safety systems have been detailed in Annexure 2, Supporting Functions, Plan 1. Data sheets for the fire & safety equipment have been attached as Annexure 4

Component	Activity	Unit
Fire Hydrant	– Installation of fire hydrant line in MHP area, store and security gate	Common
Fire hose and hose box	– Installation of fire hose and hose box in Boiler, TB, TJ building, switchyard, MHP, FOPH	Common
	– Installation of fire hose and hose box in remaining areas	Common
Emulsifier	– Installation of fire emulsifier (spray) in transformer yard, MOT, conveyor	Common
Foam Flooding	– Augmentation of FOPH area foam system	Common
FDAS	– Revival of fire detection and alarm system	Common
Fire Extinguisher	– Installation of ABC, BC, CO2 and foam fire extinguishers	Common
Meter	– Installation of LEL meter	Common
PTW System	– Installation of PTW system software and hardware for lock out tag out	Common
CO2 flooding	– Augmentation of CO2 flooding in generator area	Common

Plan 2: Chemical Laboratory

The key activities to be executed by Your Entity for repair / overhaul of the chemical laboratory shall include, but not be limited to, the following items in the table. The indicative list of spares to be procured for the chemical laboratory have been detailed in Annexure 2, Supporting Functions, Plan 2.

Component	Activity	Unit
Spectrophotometer	– Installation of double beam spectrophotometer	Common
Colorimeter	– Installation of colorimeter	Common
Particle Count Analyzer	– Installation of PMAS particle count analyzer	Common
Digital bomb calorimeter	– Installation of digital bomb calorimeter	Common
Furnace	– Installation of furnace with temperature range of 0	Common

Component	Activity	Unit
	to 1000 degrees	
3D Trasar automation	– Installation of 3D TRASAR automation equipment	Common

Plan 3: Monitoring system

The key activities to be executed by Your Entity for repair / overhaul of monitoring systems shall include, but not be limited to, the following items in the table. The indicative list of spares to be procured for the monitoring system have been detailed in Annexure 2, Supporting Functions, Plan 3.

Component	Activity	Unit
Effluent monitoring system	– Installation of EQMS Online Efluent Monitoring Sytem as per CPCB Guidelines (STP&ETP) for treated water parameter monitoring	Common
Ambient air monitoring system	– Installation of online ambient air monitoring system measuring parameters including SO2, NO2, CO, CO2, PM2.5/PM10	Common
Chimney SPM online monitoring system	– Installation of chimney SOx,NOx, SPM online monitoring system as per CPCB guidelines	Common

1.1.2.7. Commissioning activities

Your Entity shall be responsible for commissioning of the equipment across both units of the Plant and ensuring observation for 72 hours after operationalization at full load with design parameters and continuous operation of machine, with observation of performance parameters and supervisory parameters.

1.2. Scope for supply of material

Your Entity shall procure all material / equipment / spares as per the quantities and specifications detailed in Annexure 2 (Mechanical, Electrical, C&I, Supporting functions) for overhauling of both units of the Plant simultaneously.

1.2.1. Procurement planning

1. Your Entity shall create a 'Procurement Register' for the BOP Package in collaboration with the PMC, including all the detailed item-wise Bills of Quantity (BoQs) with associated costs and technical specifications to ensure adherence to desired quality and exercise cost control within Contractual limits. Your Entity shall be responsible to purchase and procure all the items in the Procurement Register

2. Your Entity shall prepare a 'Procurement Plan' for the BOP Package for the purpose of monitoring all Procurement activities and ensuring timely delivery of all material across all Packages, in line with the timelines mentioned in "Duration of Contract" and Section 8.2 (Payment Milestones)
3. Your Entity shall coordinate with the PMC in maintaining a digital data sheet (in excel format) of the 'Procurement Plan', with the desired timelines and costs vis-à-vis the actual timelines followed and costs incurred to track compliance. Your Entity and PMC shall grant all requisite access to the data sheet to the Owner, and share necessary summaries for reporting purpose, if requested

1.2.2. Physical verification

Your Entity shall, in coordination with the PMC, conduct physical verification of existing inventory at the Plant to identify the equipment and associated spares and material readily available to be utilized during the Overhaul. Further, Your Entity shall integrate the existing inventory with the 'Procurement Register' to ensure optimal Procurement and consumption of material.

1.2.3. Material management

Your Entity shall deploy appropriate material management systems (e.g., ERP solutions) to track movement of material and adherence to schedules and quality. Further, Your Entity shall integrate the system with the digital data sheet described in Section 1.2.1 of Part 2 of this document.

1.2.4. Quality management

Your Entity shall ensure the procurement of material is as per the technical and design specifications provided in Annexure 1 and adhere to highest standard of engineering and workmanship, to ensure after completion of the Overhaul, the Plant shall be capable of performing in a safe, reliable, sustainable, and in a manner acceptable to the owner.

1.2.5. Packing and transportation

1. Your Entity shall be responsible for packing and transportation of all material to be repaired / refurbished from the Plant to Your Entity's / supplier's facilities and back to the Plant. Your Entity shall also be responsible for loading, unloading, preservation, and storage of the material during transit
2. Your Entity shall arrange for appropriate transit insurance and clearances from relevant authorities for all material to be transported from the Plant to Your Entity's / supplier's facilities and back
3. Your Entity shall be solely responsible to replace the material that may be damaged or lost in transit and shall bear the cost for all such material. Further, Your Entity shall provide notice in writing to the owner, copying the PMC and the Owner with the details of the issue, as needed

1.2.6. Factory (FATs) and site acceptance tests (SATs)

1. Your Entity shall arrange for factory acceptance tests to be conducted for all the material / equipment at Your Entity's/ supplier's facilities, prior to shipping, in the presence of the owner, the PMC, and other representatives deployed by the owner, if needed
2. Your Entity shall arrange for appropriate certificate through Government approved NABL labs for material of construction (MOC) used for the material/equipment procured. Further, Your Entity shall ensure the certificates are in line with OEM guidelines and acceptable specifications.
3. Your Entity shall provide a notice of at least 3 weeks prior to arranging for factory acceptance tests at Your Entity's/ supplier's facilities and provide the procedure for conducting the test for the owner's approval
4. The factory acceptance tests shall include, but shall not be limited to, the following key activities:
    i. Visual inspection: Inspection of the material / equipment for any physical defects, damage, or other issues
    ii. Functional testing: Testing the material / equipment to ensure that it performs the intended functions and meets the specified performance criteria, as applicable
    iii. Safety testing: Testing the safety features of the material / equipment to ensure that they function as intended and meet any applicable safety standards or regulations, as applicable
    iv. Documentation review: Reviewing the documentation related to the material / equipment, such as user manuals, technical specifications, and test reports
5. Your Entity shall ship the material / equipment to the Plant only upon successful completion of the factory acceptance tests and sign-off by the owner and owner's representatives
6. Upon delivery and installation of material / equipment at the Plant, Your Entity shall arrange for a site acceptance test in the presence of the owner, the PMC, and other representatives deployed by the owner, if needed
7. Your Entity shall provide a notice of at least 3 weeks prior to arranging for site acceptance tests at the Plant and provide the procedure for conducting the test for the owner's approval
8. The site acceptance tests shall include, but shall not be limited to, the following key activities:
    i. Verification of installation: Verifying that the equipment or system has been installed correctly, according to the manufacturer's instructions and any applicable standards or regulations
    ii. Functional testing: Testing the material / equipment to ensure that it performs the intended functions and meets the specified performance criteria
    iii. Integration testing: Testing the integration of the material / equipment with other systems or components that it will be working with, prior to commissioning

iv. Operational testing: Testing the material / equipment under various operating conditions to ensure that it can perform reliably and consistently

v. Documentation review: Reviewing the documentation related to the material / equipment, such as user manuals, technical specifications, and test reports

1.2.7. Storage of material in Plant

Your Entity shall be responsible for storage of all procured material / equipment at the Plant within Your Entity's shed. Your Entity shall be solely responsible for security of the material / equipment at the Plant. In case of theft / burglary / loss of material, Your Entity shall bear the cost of replenishing the material and ensure timely delivery to minimize impact on the execution of the Overhaul.

1.3. Standards for performance of obligations

Your Entity represents and warrants that it has the requisite skills, experience, expertise, and capacity to fulfill its obligations and responsibilities under the Contract. Your Entity shall perform all of its services hereunder in accordance and compliance with:

1. Accepted prudent industry practices
2. Incident reporting with corrective and preventive measures
3. Implementation of lessons learnt from incidents on similar facilities
4. All Applicable Laws
5. All applicable clearances to be obtained and maintained including but not limited to all relevant health and safety legislations, environment permits and licenses

Your Entity shall have round-the-clock qualified, trained, and experienced, with valid necessary certifications, crew of adequate strength who are alert and vigilant for carrying out all the normal and emergency operations, start-up, and shutdown of equipment across both units. Startup and shutdown of the plant will be done by ATPS engineers under supervision of Your Entity.

1.4. Standards for Sub-contracting

For the purpose of performing its obligations under the Contract, Your Entity may appoint Sub-Contractors with prior written intimation to the Owner as deemed fit. Appointment of such Sub-Contractors by Your Entity shall at no time mean that Your Entity is relieved of its primary duty and liability to perform its obligations as set out in the Contract. The Contractor shall be responsible for:

1. Obtaining any and all necessary authorizations required for use of all Plant infrastructure / facilities in connection with the performance of its obligations hereunder
2. Ensuring adherence to standard operating procedures and safety standards by the Sub-Contractor and be liable in the event of any issue affecting the performance of the asset

2. Responsibilities and rights of the Owner

2.1. Responsibilities of the Owner

The Owner shall be responsible for the following key activities pertaining to the execution of the Overhaul of the Plant

2.1.1. Access to Plant infrastructure

The Owner will arrange for Your Entity's accommodation and food and beverage requirements at the Plant for the key Personnel deployed on ground to oversee the execution of the Overhaul, on chargeable basis and on the basis of availability of accommodation. In case infrastructure is not available, Your Entity shall be responsible for arranging the same. Your Entity shall ensure that the Personnel are available at the Plant for the entire course of Overhaul and shall take requite consent from the Owner with prior intimation through a Written Notice in case of any changes in availability of Personnel.

2.1.2. Access to documents and data

The Owner shall provide Your Entity with access to available drawings, documents, design manuals, and operational information required for the successful execution of the Overhaul. In case any technical drawing, document is unavailable with the owner, then the same shall be developed by Your Entity at its own cost.

2.1.3. Shutdown and startup activities

The shutdown (prior to commencement of the Overhaul), and startup of the plant (post successful completion of the performance guarantee tests) shall be done by the Owner, in the presence and supervision of Your Entity.

2.2. Rights of the Owner

The Owner, throughout the tenure of the Contract, reserves the following rights relating to preparation and execution of the Overhaul of the Plant, not specifically granted to Your Entity.

2.2.1. General policies and procedures

The Owner reserves the rights for review and determination of general policies and procedures not previously delegated to Your Entity as part of the scope of work.

2.2.2. Audits

The Owner may, from time to time, designate any responsible person on its behalf to conduct audits, pertaining to the Owner's capacity defined in the Contract, of financial (billing and invoicing), technical, safety, and to visit and inspect the Plant to discuss such affairs, which relate to the services provided by Your Entity, with its authorized representatives.

2.2.3. Access to data

The Owner reserves the rights to access all records, documents, and data relating to the services provided by Your Entity during the preparation and the execution of the Overhaul, including for making copies thereof or extracts.

The Owner shall have the right, at all times, on reasonable notice and at the premises of Your Entity to examine drawings / design documents which have been prepared by Your Entity

3. Rate Settlement Mechanism

During the execution of the Overhaul, if Your Entity identifies additional items to be procured, deviations in quantities, and / or associated services to be performed, over and above the items given in the BoQ in Annexure 2 to restore the health of the equipment and ensure performance, such items and services shall be notified to the competent authorities of the PMC and the Owner prior to initiation of procurement or execution of the services.

A 'Rate Settlement Committee' shall be established with competent authorities from the PMC and the Owner. The BOP Package Leader shall present the need for the additional items and / or services to the 'Rate Settlement Committee', with a rationale for the quantities of items to be procured and rates for the items and / or services discovered in the market.

The quoted rates for all material / equipment / spares detailed in the BoQ in Annexure 2 shall remain the same irrespective of any variation in individual quantities.

The committee shall reserve the right to negotiate the rates and authorize Your Entity to initiate procurement of the identified items and / or execution of the services.

4. Performance Guarantee Testing (PGT) and acceptance procedures

4.1. Performance Guarantee Testing (PGT)

1. Your Entity shall submit for PMC and Owner's approval, the detailed Performance Test procedure containing the following:
    i. Object of the test
    ii. Various guaranteed parameters and tests as per contract
    iii. Method of conductance of test and test code
    iv. Duration of test, frequency of readings and number of test runs
    v. Method of calculation
    vi. Correction curves
    vii. Instrument list consisting of range, accuracy, least count, and location of instruments
    viii. Scheme showing measurement points
    ix. Sample calculation
    x. Acceptance criteria
    xi. Any other information required for conducting the test
2. The Performance /Acceptance tests shall be carried out by Your Entity as per the procedures approved by competent authority of the PMC and the Owner in accordance with the procedures

as per the ASME PTC 4.1 (for Boiler) and as per IS-11255, Part 1 and 3, 1985, reaffirmed 2003/2008 (for ESP)

3. Your Entity shall make the equipment ready for carrying out the performance guarantee tests post completion of the Overhaul
4. The tests shall be binding on Your Entity to determine compliance of the equipment with the performance guarantees. No separate performance tests need be done on equipment which is already tested at shop
5. All instruments required for performance testing shall be of the type and accuracy required by the code and prior to the test, Your Entity shall get these instruments calibrated in an independent test institute. All test instrumentation required for performance tests shall be supplied by Your Entity and shall be retained by him upon satisfactory completion of all such tests at site. All costs associated with the supply, calibration, installation, and removal of the test instrumentation shall be borne by Your Entity. All calibration procedures and standards shall be subjected to the approval of the owner. The protecting tubes, pressure connections and other test connections required for conducting guarantee test shall conform to the relevant codes
6. Tools and tackles, thermo wells (both screwed and welded) instruments/ devices including flow devices, matching flanges, impulse piping, and valves etc., and any special equipment, required for the successful completion of the tests, shall be provided by Your Entity.
7. After the conductance of Performance test, Your Entity shall submit the test evaluation report of Performance test results to owner promptly but not later than two weeks from the date of conductance of Performance test. However, preliminary test reports shall be submitted to the owner after completing each test run

4.2. Desired outcome parameters

Your Entity shall adhere to the desired outcome parameters defined below in order to ensure successful completion of the Overhaul and obtain an 'Operation Acceptance Certificate' by the PMC.

Component	Desired outcomes	Threshold (for each unit)
Condenser	Condenser pressure for turbine rated output conditions with maximum circulating water inlet temperature at 34 Celsius and 0% make up and tube cleanliness factor 0.85	0.102 (kg/cm2)
Condenser	Temperature rise of cooling water in condenser at rated load and at VWO condition	6 degree Celsius at rated load
LP Heater	Feedwater pressure drop across each heater at rated output with 3% make up	LP1 - 0.8 kg/cm2 LP2 - 0.6 kg/cm2 LP3 - 0.6 kg/cm2 LP4 - 0.7 kg/cm2 LP5 - 0.5 kg/cm2

Component	Desired outcomes	Threshold (for each unit)
Hotwell	Condensate temperature at hotwell outlet at 34 Celsius cooling water inlet temperature	45.3 degree Celsius
Cooling Water	Cooling water temperature	34 degree Celsius

4.3. Notice of tests

Your Entity shall issue 21 (twenty-one) days' notice to the Owner of the date after which he will be ready to commence the tests and Your Entity shall commence the tests promptly thereafter.

4.4. Retesting

If the unit fails to pass the test (which in the case of performance tests means not achieving the acceptable limits), the Owner reserves the right to ask Your Entity to repeat such tests on the same terms and conditions. The retest shall be conducted by Your Entity within 14 (fourteen) days of notification from the Owner.

4.5. Delayed tests

If the tests could be carried out but are being unduly delayed by Your Entity, the Owner may by notice inform Your Entity to conduct the tests within 14 (fourteen) days after the receipt of such notice. Your Entity shall conduct the tests on such days within that period as Your Entity may fix and of which he shall issue notice to the Owner.

If Your Entity fails to conduct the tests within such notice the Owner may himself proceed with the tests. All tests so conducted by the Owner shall be at the risk and cost of Your Entity and the cost thereof shall be deducted from the contract price or charged to Your Entity. The tests shall then be deemed to have been conducted by Your Entity and the test results shall be binding on Your Entity.

4.6. Independent inspector

The Owner reserves his right to appoint an independent inspector, at its own cost, as its representative to discuss the test program, to approve the instrumentation, to witness the tests and to analyze the test results.

It is Your Entity's responsibility to co-ordinate for suitably carrying out the performance tests. The duration of the test shall be in accordance with the agreed test codes at the loads after necessary stabilizing period to obtain steady state conditions. All other tests to prove the guarantees as indicated in Your Entity's offer shall also be conducted.

The equipment parameters during the performance test shall be adjusted as far as practicable to the guaranteed performance test conditions. The tests shall be conducted to prove guaranteed parameters as defined in the contract.

The performance test results shall be reported as computed from the performance test observations with corrections for site conditions, variations in load, etc., and test conditions. Such correction curves shall be submitted along with the bid. No additional allowances for errors in measurement are

permissible. The measurement uncertainty on the performance test guarantee values, as reported on the basis of above tests shall not exceed the uncertainty limits specified.

4.7. Reporting of test results

Immediately after the conclusion of the performance test, Your Entity shall submit a test report (Six copies of each test) to the Owner stating whether the unit has passed or failed such test, accompanied by sufficient test data and calculations to demonstrate the level of performance attained with respect to each of the tested parameters.

The report(s) shall include as a minimum, the following:

i. Description of the test procedures
ii. Standards that were used
iii. Instrumentation details and calibration
iv. Full schematic diagrams with indication of instrument test location and identification tag of same
v. Test logs and summary of test readings used for efficiency calculations
vi. Full set of correction curves, if applicable
vii. Computation of test results
viii. Computations to prove measurement uncertainty is within acceptable limits
ix. Plant performance parameters
x. Templates for calculations (validated by the PMC)
xi. Data reduction
xii. Chronology of events
xiii. List of exceptions to procedure
xiv. Operator log sheets
xv. Detailed calculations at guaranteed loads
xvi. Conclusions of performance tests: test passed or not

4.8. Acceptance of test report

Within 14 (fourteen) days of receipt such test report(s), the Owner shall submit a notice to Your Entity stating either:

i. That Owner concurs with the information provided in Your Entity's test report(s), or
ii. That Owner disputes some or all of the information provided in Your Entity's test report(s), the areas being disputed, and the levels of performance being disputed.

If Owner concurs with the information in Your Entity's test report(s), the Owner shall, within 14 (fourteen) days of receipt of the test report, provide a written notice to Your Entity accepting the results of the tests.

If Owner disputes any or all of the results contained in Your Entity's test report(s), representatives of Your Entity, Owner and the Engineer shall meet within 14 (fourteen) days of the receipt of the Owner notice at a mutually acceptable location to review and discuss the dispute.

4.9. Disagreements as a result of tests

If the Owner and Your Entity disagree on the interpretation of the test results, each shall give a statement of his views to other within reasonable time after such disagreement arises. The statement shall be accompanied by all relevant evidence. The Owner and Your Entity shall mutually discuss and agree regarding the results of the test.

5. Reporting requirements and deliverables

Your Entity shall prepare and submit a comprehensive 'Overhaul Completion Report' incorporating the key activities undertaken, results of the Performance Guarantee test, and list of material supplied to the Owner as part of the Overhaul, within 2 weeks of completion of the Overhaul, to mark the completion of the Overhaul.

Further, Your Entity shall prepare and submit fortnightly progress reports with the PMC, and the Owner. Each progress report shall include:

1. Photographs and detailed descriptions of progress including each stage of design, procurement, manufacture, delivery at Site, construction, erection, testing and commissioning
2. A detailed description of the milestones achieved, and the Work/ Services performed prior to the date of the fortnightly progress report and the extent to which payments therefore have been received against the milestones
3. A description of the current status (the name of manufacturer, manufacture location, percentage progress, and the actual or expected dates of commencement of manufacture, Your Entity's inspections, tests, and delivery) of supplies and Equipment and of Your Entity's and all Major Sub-Contractors activities and engineering, manufacturing and construction progress as compared with the Project Schedule.
4. Copies of quality assurance reports including test results (i) from the manufacturing and fabrication facilities of all Sub-Contractors and (ii) with respect to all construction activity at the Facility Site
5. Safety statistics required under Applicable Laws, including details of any hazardous incidents and activities relating to environmental aspects and public relations.
6. Comparisons of actual and planned progress, with details of any aspects which may jeopardize the completion in accordance with the Contract, including Overhaul Execution Plan and the mitigation measures / action plan being (or to be) adopted to overcome such aspects. It shall include a clear identification and evaluation of problems and deficiencies in the Services (including but not limited to an evaluation of any factors which are anticipated to have a material effect on the Project Schedule).
7. Any other information as considered necessary by Owner / Owner's Representative.

6. Contract performance measurement

6.1. Key Performance Indicators (KPIs)

Your Entity shall adhere to the following KPIs and targets during the Overhaul. In case of shortfall, liquidated damages shall be applicable and in case of superior performance, incentives shall be applicable as per the following sections:

6.1.1. Time-based KPIs

Phase	KPI	Liquidated damages	Incentive
Procurement of material / equipment	Schedule compliance with 'Procurement Plan' for Balance of Plant package prepared by Your Entity as per Section 1.2.1 of this document	0.5% of price for supply of material / equipment delayed for every week of delay in completion of 'Procurement Plan' *(i.e., if 5 items are delayed, penalty of 0.5% shall be applicable on cumulative price for supply of the 5 items)*	NA
Execution of Overhaul	Schedule compliance with 'Overhaul Execution Plan' for Balance of Plant package prepared by Your Entity as per Section 1.1.1.1 of this document	0.5% of lumpsum price for Overhaul execution for every week of delay in completion of 'Overhaul Execution Plan'	0.5% of lumpsum price for supply of material / equipment and lumpsum price for Overhaul execution for every week of delivering ahead of schedule in completion of 'Overhaul Execution Plan'

Note–Any delay more than 3 days shall be accounted as a week of delay while calculating the liquidated damages.

6.2. Overall ceiling on Liquidated Damages and incentives

1. All liabilities due from Your Entity arising out of the shortfall of performance levels mentioned under Section 6.1, as per the liquidated damages defined in Section 6.1, during the course of the Overhaul, shall be restricted to a maximum of 10% of the lump sum price for supply of material and Overhaul execution defined in Section 8.1 of this document
2. All incentives due to Your Entity as per the incentives defined in Section 6.1, during the course of the Overhaul, shall be restricted to a maximum of 5% of the lump sum price for supply of material and Overhaul execution defined in Section 8.1 of this document

7. Defect liability

1. Your Entity warrants that the BOP Systems or any part thereof shall be free from defects in the design, engineering, materials, and workmanship of the equipment supplied and of the work executed
2. The Defect Liability Period shall be 18 (eighteen) months from the date of Completion of the Overhaul (or any part thereof) or 12 (twelve) months from the date of Operational Acceptance of the

equipment (or any part thereof), whichever first occurs, as certified by the PMC/owner /any agency on behalf of owner

3. If during the Defect Liability Period any defect should be found in the design, engineering, materials, and workmanship of the equipment supplied or of the work executed by Your Entity, Your Entity shall promptly, in consultation and agreement with the Owner regarding appropriate remedying of the defects, and at its cost, repair, replace or otherwise make good (as Your Entity shall, at its discretion, determine) such defect as well as any damage to the equipment caused by such defect
4. The Owner shall give Your Entity a notice stating the nature of any such defect together with all available evidence thereof, promptly following the discovery thereof. The Owner shall afford all reasonable opportunity for Your Entity to inspect any such defect.
5. The Owner shall afford Your Entity all necessary access to the Plant to enable Your Entity to perform its obligations under this clause
6. Your Entity may, with the consent of the Owner, remove from the Plant, any equipment or any part of the equipment that are defective if the nature of the defect, and/or any damage to the Plant caused by the defect, is such that repairs cannot be expeditiously carried out at the Plant
7. If the repair, replacement or making good is of such a character that it may affect the efficiency of the equipment or any part thereof, the Owner may give to Your Entity a notice requiring that tests of the defective part of the equipment shall be made by Your Entity immediately upon completion of such remedial work, whereupon Your Entity shall carry out such tests.
8. If such part fails the tests, Your Entity shall carry out further repair, replacement or making good (as the case may be) until that part of the equipment passes such tests. The tests in character shall in any case be not less than what has already been agreed by the Owner and Your Entity for the equipment
9. If Your Entity fails to commence the work necessary to remedy such defect or any damage to the equipment caused by such defect within a reasonable time (which shall in no event be considered to be less than fifteen (15) days), the Owner may, following written notice to Your Entity, proceed to do such work, and the reasonable costs incurred by the Owner in connection therewith shall be deducted by the Owner from any payment due to Your Entity or claimed under the Performance Security
10. If the equipment or any part thereof cannot be used by reason of such defect and/or making good of such defect, the Defect Liability Period shall be extended by a period equal to the period during which the equipment or such part cannot be used by the Owner because of any of the aforesaid reasons. Upon correction of the defects in the equipment or any part thereof by repair/ replacement, such repair/ replacement shall have the Defect Liability Period extended by a period of twelve (12) month from the time such replacement/repair of the equipment or any part thereof
11. If a defect in equipment or any part thereof supplied by Your Entity occurs a total of once during the original Defect Liability Period, the extension of the original Defect Liability Period for the repaired or replaced part(s) or equipment shall not extend beyond a total of twenty-four (24) months from the beginning of the original Defect Liability Period
12. However, if there are recurring (more than once) failures in an equipment or any part thereof supplied by Your Entity within twenty-four (24) months from the beginning of the original Defect Liability Period, the warranty shall be limited to a period of five (5) years from the end of the Defect Liability Period

13. At the end of the Defect Liability Period, Your Entity liability ceases except for latent defects. Your Entity's liability for latent defects warranty shall be limited to a period of five (5) years from the end of Defect Liability Period. For the purpose of this clause, the latent defects shall be the defects inherently lying within the material or arising out of design deficiency which do not manifest themselves during the Defect Liability Period

14. In case, there is any dispute between Owner and Your Entity regarding latent defects, a third party as mutually agreed upon by the Owner and Your Entity shall be engaged by the Owner for settling the dispute

15. The third party, so engaged by the Owner, shall be paid fee plus reasonable expenditures incurred in the execution of its duties as mentioned above. These costs shall be recoverable from Your Entity and Your Entity shall bear and / or reimburse such costs to the Owner if the latent defect has been proved. If the dispute regarding latent defects cannot be settled as above, then the dispute shall be settled as per Section 11.6 (Arbitration) of the RfP as deemed fit

8. Payment terms

8.1. Lumpsum Charges for Balance of Plant Package

Your Entity shall quote the lumpsum charge for supply of material and lumpsum charge for Overhaul execution (services) for the duration of the execution of the Overhaul, as per the Price Bid format specified in Annexure 14 of this document.

8.1.1. Lumpsum charges for supply of material

Your Entity shall quote the unit rate for all items detailed in the BoQ given in Annexure 2. The lumpsum charges for supply of material shall be calculated as the sum of the unit rates times the quantities detailed in the BoQ for all items.

8.1.2. Lumpsum charges for Overhaul execution

Your Entity shall quote the service charges separately as per the indicative format in Annexure 14.

8.2. Payment milestones

The Owner hereby covenants to pay Your Entity for performance of the Contractual terms as payment terms specified hereunder –

T – date of acceptance of LOA

Category	Activity	% of total contract value	Timelines
Supply of material	Advance payment for procurement of spares, after submission of Performance Security and submission of item-wise price list	10%	T + 2 weeks

Category	Activity	% of total contract value	Timelines
	Placement of POs for procurement of spares	25% (pro-rated[1])	T + 10 weeks
	Delivery of material on site with physical verification, certification, and sign-off by the PMC	40% (pro-rated[1])	T + 28 weeks; 6 weeks of contingency considered; LD applicable beyond T+34 weeks
	Completion of Guarantee Tests for both units and issue of Operation Acceptance Certificate by the PMC	10%	T + 44 weeks; 6 weeks of contingency considered; LD applicable beyond T+50 weeks
	Submission of final 'Overhaul Completion Report' approved by Authority	10%	T + 46 weeks; 6 weeks of contingency considered; LD applicable beyond T+52 weeks
	Completion of defect liability (warranty period)	5%	18 (eighteen) months from the date of Completion of the Overhaul or 12 (twelve) months from the date of Operational Acceptance of the equipment, whichever first occurs
Overhaul execution	Mobilization fee	10%	T + 2 weeks
	Monthly payments against progressive installation of equipment on site	15% (per month)	Monthly payments in equal installments for 3 months during Overhaul execution
	Completion of the Overhaul activities for Balance of Plant Systems and issue of Completion Certificate by the PMC	15%	T + 40 weeks; 6 weeks of contingency considered; LD applicable beyond T+46 weeks
	Completion of Guarantee Tests for both units and issue of Operation Acceptance Certificate by the PMC	15%	T + 44 weeks; 6 weeks of contingency considered; LD applicable beyond T+50 weeks
	Submission of final 'Overhaul Completion Report' approved by Authority	10%	T + 46 weeks; 6 weeks of contingency considered; LD applicable beyond T+52 weeks
	Completion of defect liability (warranty period)	5%	18 (eighteen) months from the date of Completion of the Overhaul or 12 (twelve) months from the date of Operational Acceptance of

[1] Bidders to provide detailed item wise price for the required spares detailed in Annexure 2 of this document within 14 days from date of acceptance of LoA. The payment on delivery of material on site shall be prorated as per the items delivered against the required spares, upon certification by the PMC.

Category	Activity	% of total contract value	Timelines
			the equipment, whichever first occurs

1. Your Entity shall submit invoices upon achieving milestones stated in sub clause hereinabove. Authority shall make payment within 30 days of submission of invoices upon verifying the milestone for which invoice is submitted subject to deduction of any damages pursuant to Contract conditions.
2. Applicable GST, over and above approved Lumpsum Charges for Balance of Plant Package, at the time of invoicing shall be reimbursed by the Owner upon submission of proof thereof. The risk of applicability of any taxes, duties, and levies except GST, shall rest with Your Entity
3. The Owner shall be entitled to deduct tax at source as may be applicable. The TDS certificate(s) shall be submitted as per the due date specified in the Income Tax Act

9. Insurance

9.1. Insurance of Equipment

Your Entity shall, at their sole cost, in the joint names of Owner, Your Entity, and the Sub-Contractors, take insurance cover for full replacement value for the following:

1. "Material Damage Insurance" (Storage-cum-Erection Insurance) on an “All Risk" basis (including terrorists act, SRCC) of loss or of damage arising during period of Insurance coverage to any part of the Contract works, material and supplies Your Entity any transit and off-site storage, and anywhere in India for ex-works Indian factory and foreign supplies, materials, etc.
2. Such insurance shall be administered and managed by Your Entity and shall be affected from the Commencement date of Contract and thereafter shall operate from the time the relevant property leaves the premises of the manufacturers in the country of origin, and shall continue during the ordinary course of transit and during storage on or off the Plant site, if any, and during erection and commissioning until the date on which Owner takes over the care, custody, and control of the Plant/Equipment, to the exclusion of Your Entity

9.2. Rented Equipment

1. All construction equipment shall be brought to and kept at the Site at the sole cost, risk and expense of Your Entity. Owner shall not be liable for any loss or damage thereto. Your Entity, at his sole discretion, may maintain adequate, appropriate and prudent insurance with respect to such construction equipment. Your Entity shall obtain adequate insurance to cover all construction equipment rented or leased from third parties and also for the construction equipment of Sub-Contractor.
2. Any insurance policy carried by Your Entity, any Sub-Contractor or any third party on or in respect of any construction equipment shall provide for waiver of the underwriter’s right to subrogation against Owner, their assignees, subsidiaries, parent companies, affiliates, employees, insurers, and underwriters.

9.3. Statutory Insurance Benefits

Your Entity shall maintain with respect to the Work to be done under the Contract, in each applicable jurisdiction, all statutory benefits and other insurance required by law including without limitation unemployment insurance.

9.4. Third Party Insurance

1. Your Entity shall, in the joint names of Owner, Your Entity and the Sub-Contractor's prior to the commencement of any work in the Plant pursuant to this Agreement, insure in an amount not being less than project cost thereof against any liability for damage or death or personal injury occurring in the Plant, obstruction, loss of amenity, trespass, nuisance or advertising liability pursuant to the Contract. Such insurance shall be endorsed or amended as to be considered primary, and any other insurance maintained by Owner shall be in addition and not contributory to this insurance.
2. Indemnity amount indicated above shall be the minimum coverage that Your Entity takes under the policy. Notwithstanding the above coverage, Your Entity at their discretion will take policy for an appropriate coverage not less than the indemnification amount prescribed as above, so as to meet all the liabilities that may arise on account of third-party risks from the commencement of contract till the Owner takes over the care, custody, and control of the Plant, to the exclusion of Your Entity.

9.5. Insurance against Accident, etc. to Workmen; Other Insurance

Your Entity shall, at its sole expense, insure and shall maintain insurance as required by Indian and all other applicable laws for all actions, suits, claims, demands, costs, charges, and expenses arising in connection with the death of or injury to any person employed by Your Entity or its Sub-Contractor for the purpose of the performance of the Work.

9.6. Disclosure

Each Party shall, upon request, promptly furnish the other Party any information which is reasonably available and is related to the fulfillment of the contractual obligations as is necessary to enable the other Party to comply with its disclosure obligations under the insurance which it has taken out, the terms of which have been disclosed to the other Party in writing.

At the Owner's request, Your Entity shall provide evidence of insurance covers, or a certificate of all insurances maintained.

9.7. Remedy on Failure to Insure

If Your Entity fail to effect and keep in force the insurance for which it is responsible under the Contract, Owner may effect and keep in force any such insurance, and pay such premiums as may be necessary for that purpose, and from time to time, after receipt of a reimbursement request therefore accompanied by relevant supporting documentation, deduct the amount so paid by Owner from any amounts due or which may become due to Your Entity under the Contract or otherwise from the Owner.

9.8. Limitation of Liability

Notwithstanding any other provisions, except in cases of criminal negligence or willful misconduct,

1. Whether expressed or implied, in no event, whether as a result of breach of contract, warranty, indemnity, tort (including negligence) strict liability or otherwise, shall either Party be liable to the other for loss of contract, loss of profit or revenue, loss of use, loss of data or information, loss of power, cost of replacement power, increased cost of operation and cost of capital or for any indirect, special, collateral, or consequential damages
2. The aggregate liability of Your Entity to the Owner, whether under the Contract, in tort or otherwise, shall not exceed the total Contract Value, provided that this limitation shall not apply to any obligation of Your Entity to indemnify the Owner with respect to patent infringement.

9.9. Claims for losses / damages

1. Your Entity/Sub-Contractor shall make all claims with the underwriter/s and undertake all formalities/step required for settlement of claims
2. Your Entity/Sub-Contractor shall hold harmless the Owner for non-settlement/short settlement/part settlement or repudiation of claims by the underwriter/s
3. Your Entity shall be obliged to replace / repair the Equipment/ components/parts/spares etc., without waiting for loss settlement by the underwriter/s

10. Non fulfilment of terms and conditions and Termination of Contract

1. If at any time during the currency of this contract, if any breach occurs due to the reasons attributed to Your Entity, the Owner shall be at liberty to terminate this contract with a cure period of 30 (thirty) days without assigning any reasons, whatsoever, for such termination and any losses and/or damages occurring due to such termination shall be borne by Your Entity.
2. If Your Entity fails to carry out the work as per terms and conditions of the contract to the satisfaction of the Owner, the Owner shall be entitled to forfeit the Performance Security paid by Your Entity as per Section 7.3 of Part 3 of the RfP. This, however, shall not absolve Your Entity from its obligation to fulfill the contract. In such event, the Owner shall have a right to complete and / or to get the work completed at the cost & risk of Your Entity and Your Entity shall be responsible to pay such cost incurred by the Owner to complete the work and / or to get the work completed
3. Likewise, if Your Entity does not fulfill the terms and conditions of the Contract and does not carry out the work up to the entire satisfaction of the Owner, the Owner has the right to forthwith terminate the Contract at its sole discretion with a cure period of 30 (thirty) days, without assigning any reason. Under such events, the Owner shall be entitled to forfeit the Performance Security paid by Your Entity as per Section 7.3 of Part 3 of the RfP, and the Owner shall have a right to complete the work and / or to get the work completed at the risk and cost of Your Entity
4. For any reasons, if it is required, the Owner reserves rights to cancel, terminate, amend and / or alter the Contract and / or bifurcate and / or increase and / or reduce the Contract work at any time by providing a cure period of 30 days to Your Entity and without incurring any responsibility

Duration of the Contract

The Contract shall be deemed to have come into force and effect 7 (seven) days from the date of acceptance of the Letter of Award (LOA) by the Owner to Your Entity and Your Entity shall execute the scope of work for provision of services and supply of material as covered in Section 1 within a period of 45 weeks from the date of acceptance of LoA. In the said duration, Your Entity shall complete the following key activities in the Package as per the stipulated timelines, where T shall mean the date of acceptance of the LOA:

S. No	Activity	Duration
1	Mobilization	T + 2 weeks
2	Completion of procurement of supplies for both units	T + 28 weeks
2	Completion of pre-Overhauling activities for both units	T + 28 weeks
3	Overhauling and commissioning of equipment across both units	T + 40 weeks
4	Completion of Performance Guarantee Testing for both units	T + 45 weeks

The Contract shall be deemed to be successfully executed post completion of the aforementioned activities, as certified by competent authority from the PMC and Owner. Your Entity shall strive to complete the execution within the stipulated period of 45 weeks, however, in case of a delay, Your Entity shall ensure completion of its contractual obligations as early as possible, while the Owner reserves the right to levy penalties/liquidated damages as described in Section 6.1 of this document.

Contract Value

The total contract value, costs amounts to INR _____ (_____ only) excluding GST.

Performance Security

Your Entity shall furnish Performance Security to GMDC for securing the due and faithful performance of its obligations under the Agreement, within 7 (seven) days from the date of acceptance of LOA, in the form of Demand Draft or an unconditional and irrevocable bank guarantee (Annexure 16) for amount of equivalent to 10% (Ten percent) of the Lumpsum Charges for Balance of Plant Package (without GST) quoted, payable to GMDC by Your Entitys (the "Performance Security") from the banks approved by Government of Gujarat except Co-Operative banks . Such Performance Security shall be in favor of "Gujarat Mineral Development Corporation Ltd" and admissible and payable at Ahmedabad branch from approved bank to GMDC.

You shall maintain a valid and binding Performance Security for a period of 24 months. Your Entity shall ensure that the Performance Security shall subsist in full force and effect in terms hereof, throughout the tenure of the Contract and thereafter until expiry of twelve months. In case tenure of the Contract is extended then Your Entity shall have to renew Performance Security for a period of extended tenure.

Signing of agreement

After acknowledgement of the LoA as aforesaid, subject to furnishing the Performance Security as per the RfP provisions, Your Entity execute/sign the Agreement within the 30 (thirty) days from the date of LoA.

You shall get a correct amount of Stamp Duty adjudicated (Stamp Paper of Rs. 300 denominations can be used), at Ahmedabad in accordance with Applicable Law and submit the same in two copies duly stamped and executed within 30 (thirty) days from the dispatch of Letter of Award. GMDC shall return one copy duly sealed and signed as a token of acceptance of the Contract. Stamp Duty, and any other charges as may be levied under Applicable Law, shall be paid by Your Entity.

You are hereby requested to return the duplicate copy of this LoA within 7 (seven) days from the date of issue of this LoA, i.e., by _____ as a token of receipt and acknowledgement of this LoA, as well as an absolute, unconditional, and unqualified acceptance and compliance of the conditions mentioned.

All other terms and conditions of RFP No: _____and associated corrigendum shall be read with this LoA and shall be considered as a part of this LoA.

Thanking you,

Yours faithfully,

For Gujarat Mineral Development Corporation Ltd.

General Manager (Power and Purchase)

Copy to:

1. PA to MD, Corporate Office, Ahmedabad
2. CGM & CFO, Corporate Office, Ahmedabad
3. Sr. GM (Tech.), Corporate Office, Ahmedabad
4. GM (Accounts), Corporate Office, Ahmedabad

Acceptance

We hereby irrevocably and unconditionally accept the above award of work as per the terms and conditions stipulated in this LoA as well as all conditions of the RfP for Balance of Plant Package for Overhaul of GMDC's 250 (2x125) MW Akrimota Thermal Power Station (ATPS), Gujarat and subsequent corrigendum dated _____.

Date:

Place:

Signature with stamp: